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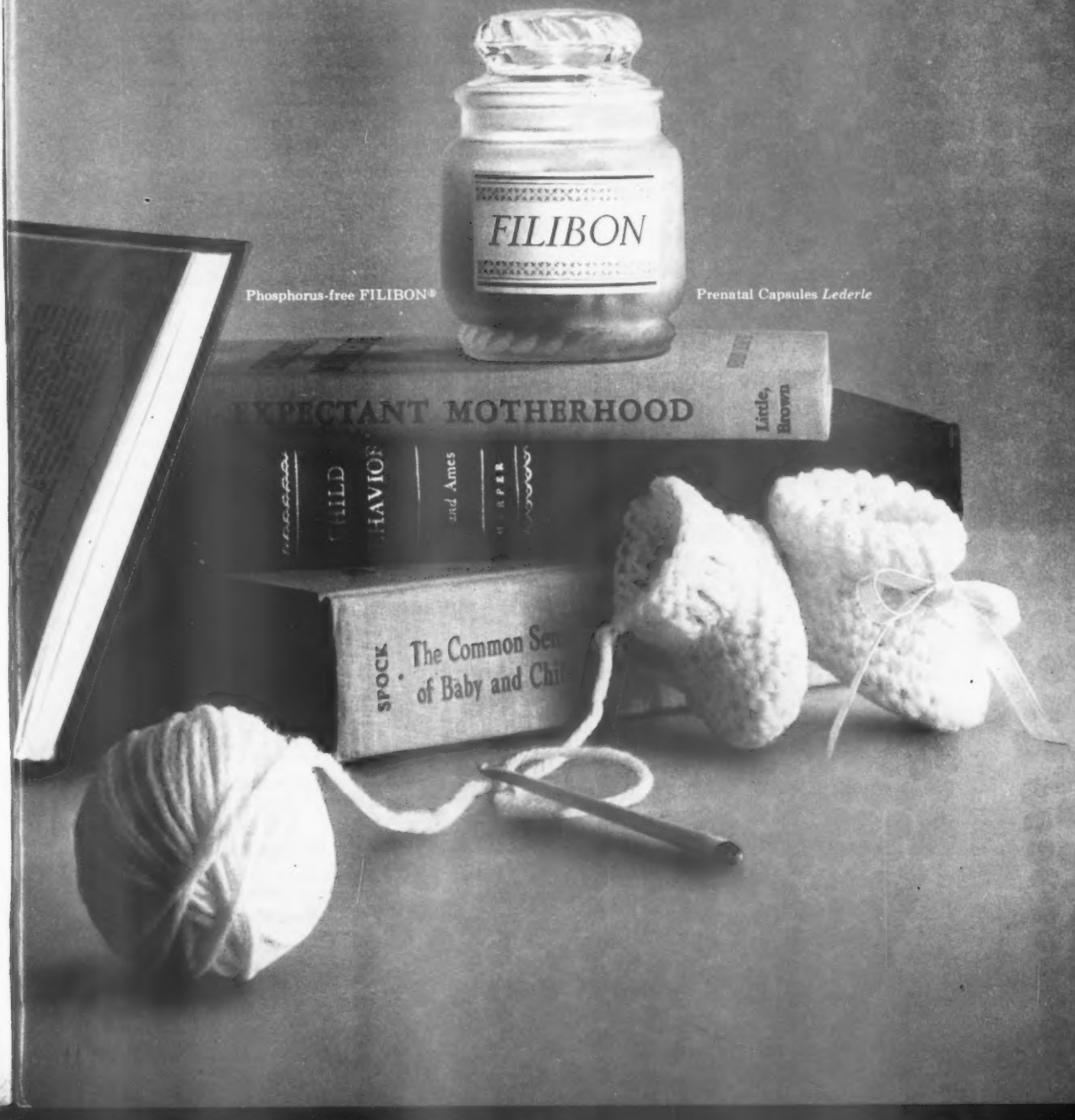

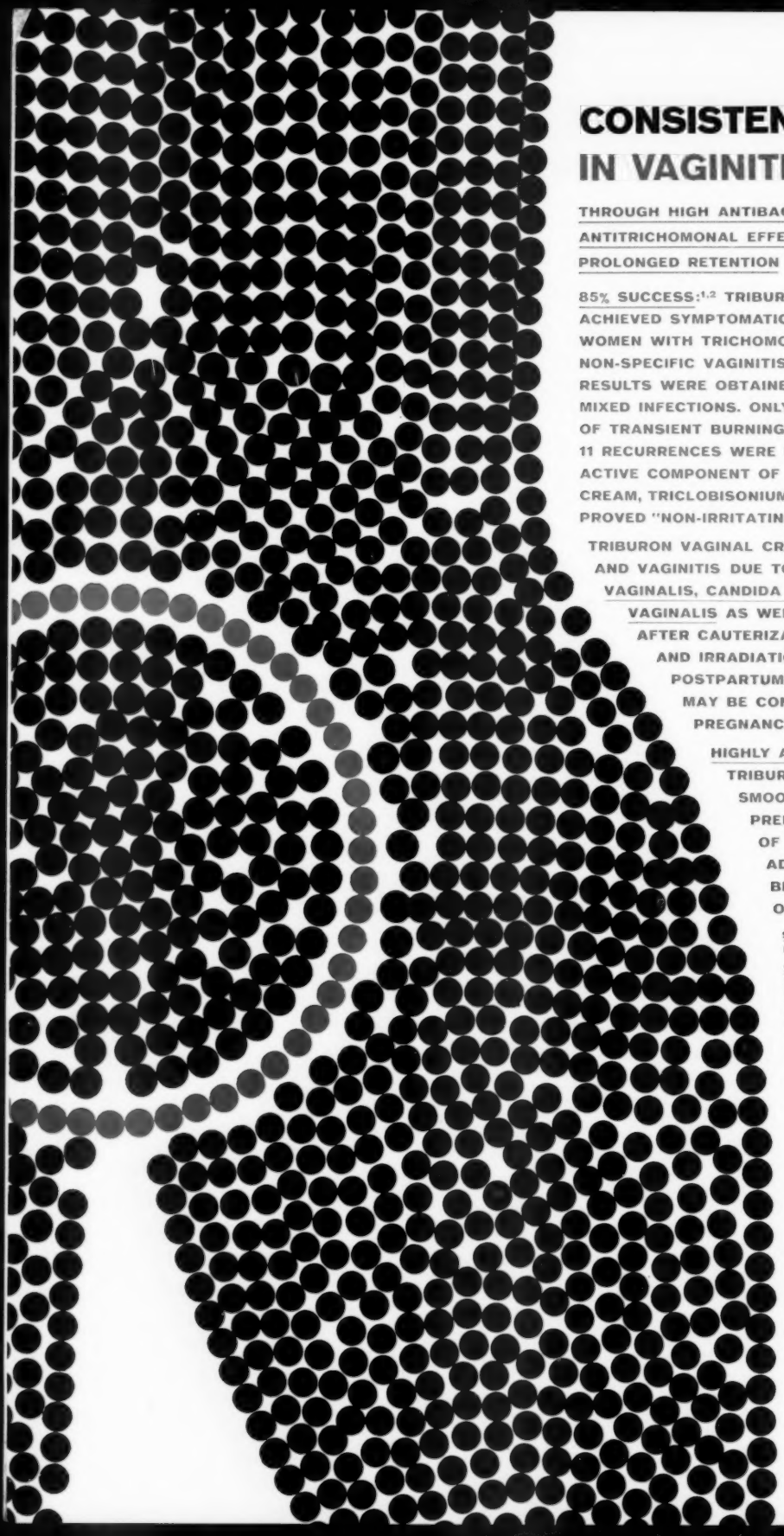

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REFERENCES: 1. N. MULLA AND J. J. McDONOUGH, ANN. NEW YORK ACAD. SC., 82:(ART. 1), 182, 1959. 2. L. E. SAVEL, D. B. GERSHENFELD, J. FINKEL AND P. DRUCKER, IBID., P. 186. 3. R. C. V. ROBINSON AND L. E. HARMON, ANTIBIOTICS ANNUAL 1958-1959, NEW YORK, MEDICAL ENCYCLOPEDIA, INC., 1959, P. 113.

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Volume 15 | May, 1960 | Number 5

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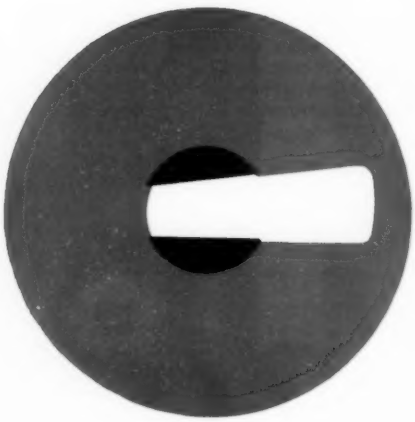

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Gilliotte, B. W.: Clin. Med. 6:223, 1959

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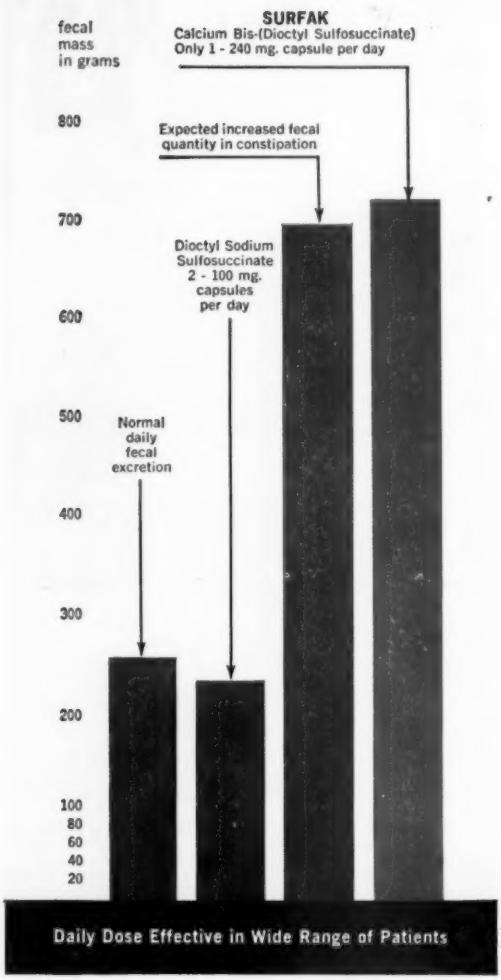

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where pain makes tension and tension makes pain

analexin

stops both effectively

Wainer[5] reports a series of 200 gynecologic cases treated with phenyramidol for various painful states. In fifty of these patients who had dysmenorrhea, excellent results were obtained in 40, good results in 5 and poor results in 5. Further examination in 4 cases not responding revealed presence of organic pathology.

A second group of 50 cases with headache and associated premenstrual tension responded with good to excellent relief in 40.

Wainer also reports the use of phenyramidol to replace codeine for postpartum pain and describes 100 cases wherein a combination of phenyramidol with aluminum aspirin successfully replaced aspirin and codeine therapy.

In another series of dysmenorrhea cases, Bader[6] compiled data on 20 employees of a telephone company who required from ½ to 2 days off from work every month regardless of previous therapy employed. With Analexin, satisfactory results were achieved in 15 and a fair response obtained in the remaining five. All were able to remain on the job.

"Phenyramidol more than satisfies ideal criteria for an orally administered moderately potent analgesic agent."[7]

"Not only is satisfactory relief of painful states achieved in the majority of patients regardless of etiology and duration of pain, but there is also no evidence of cumulative toxicity. Furthermore in contrast to codeine and meperidine, the likelihood of untoward reactions occurring in ambulant patients is not high. This is a decided advantage since the control of pain in the ambulant patient with chronic pain is a major clinical problem."[7]

"Phenyramidol (Analexin) with therapeutic doses is not only safe for chronic administration, but also to date we have noted no adverse effect upon the cardiovascular, gastrointestinal, liver, kidney or central nervous systems."[7]

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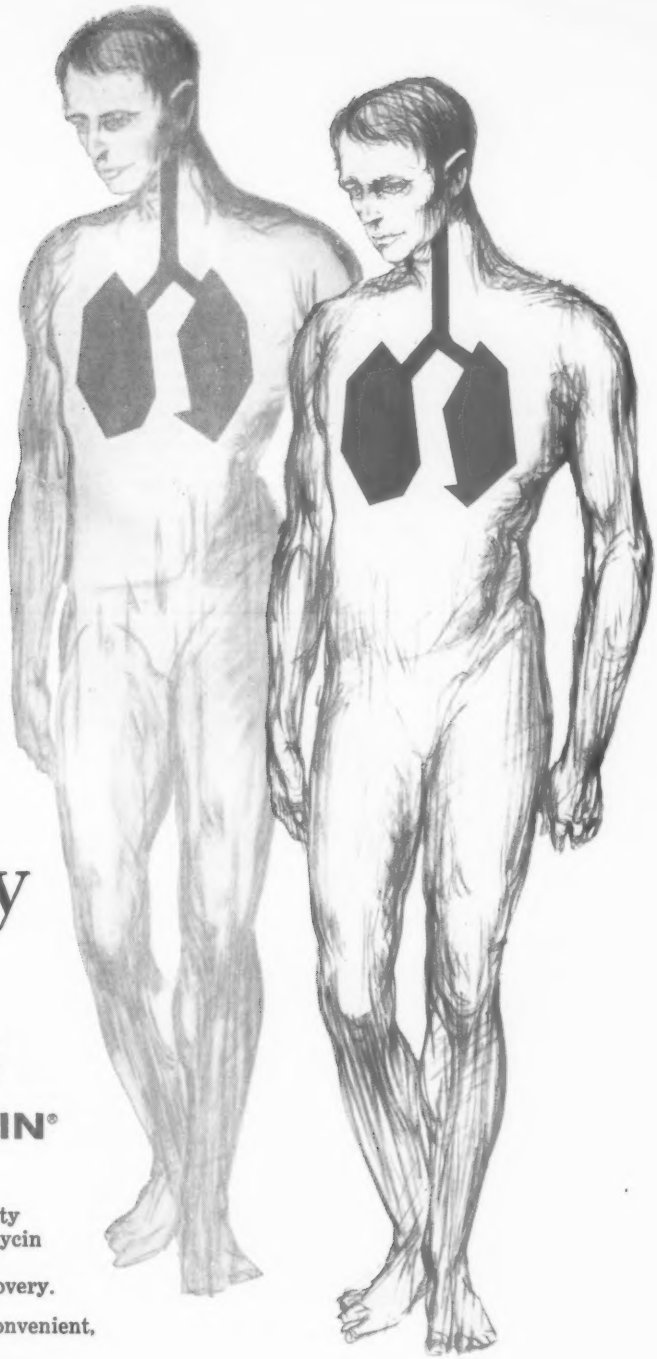

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Although many substances are lethal to trichomonads, vaginal and cervical infections are likely to recur readily unless normal vaginal acidity and growth of the protective Döderlein bacilli are reestablished. Floraquin effectively combats pathogens and simultaneously restores normal vaginal acidity. Pitt recommends[7] vaginal insufflation of Floraquin powder daily for three to five days, followed by the daily insertion of Floraquin vaginal tablets throughout one or two menstrual cycles.

Vallestril has given noteworthy results in more than 90 per cent of menopausal women; there are no significant side effects. As a result of a two-year study, Goldfarb and Napp[8] report: "Relief of symptoms was observed in 91 per cent of the patients treated with methallenestril [Vallestril]. . . . No withdrawal bleeding or other untoward effects were noted. . . . "

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1. Friend, D. G.: Clin. Pharm. & Therap. 1:5 (Jan.) 1960. 2. Parker, M. L.: Investigator's Report, Dec. 24, 1958. 3. Tyler, E. T., and Olson, H. J.: Ann. New York Acad. Sc. 71:704 (July 30) 1958. 4. Rakoff, A. E.: Symposium on Enovid, Chicago, Searle Research Laboratories, 1959, pp. 54-57. 5. Weinberg, C. H.: Symposium on Enovid, Chicago, Searle Research Laboratories, 1959, pp. 19-24. 6. Chalmers, J. A.: Proc. Roy. Soc. Med. 52:516 (July) 1959. 7. Pitt, M. B.: J.M.A. Alabama 25:182 (Feb.) 1956. 8. Goldfarb, A. F., and Napp, E. E.: J.A.M.A. 161:616 (June 16) 1956.

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1. Symposium on New Steroid Compounds with Progestational Activity, Ann. New York Acad. Sc. 71:483-805 (July 30) 1958.
2. Edgren, R. A.: Endocrinology 62:689 (May) 1958.
3. Rakoff, A. E.: Pages 800-805 of reference 1.

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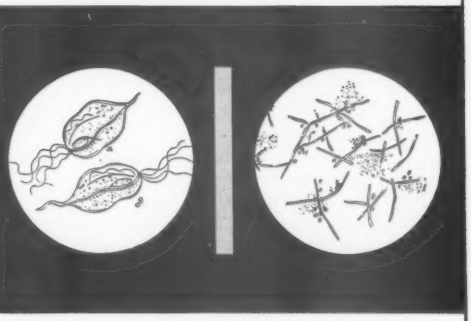

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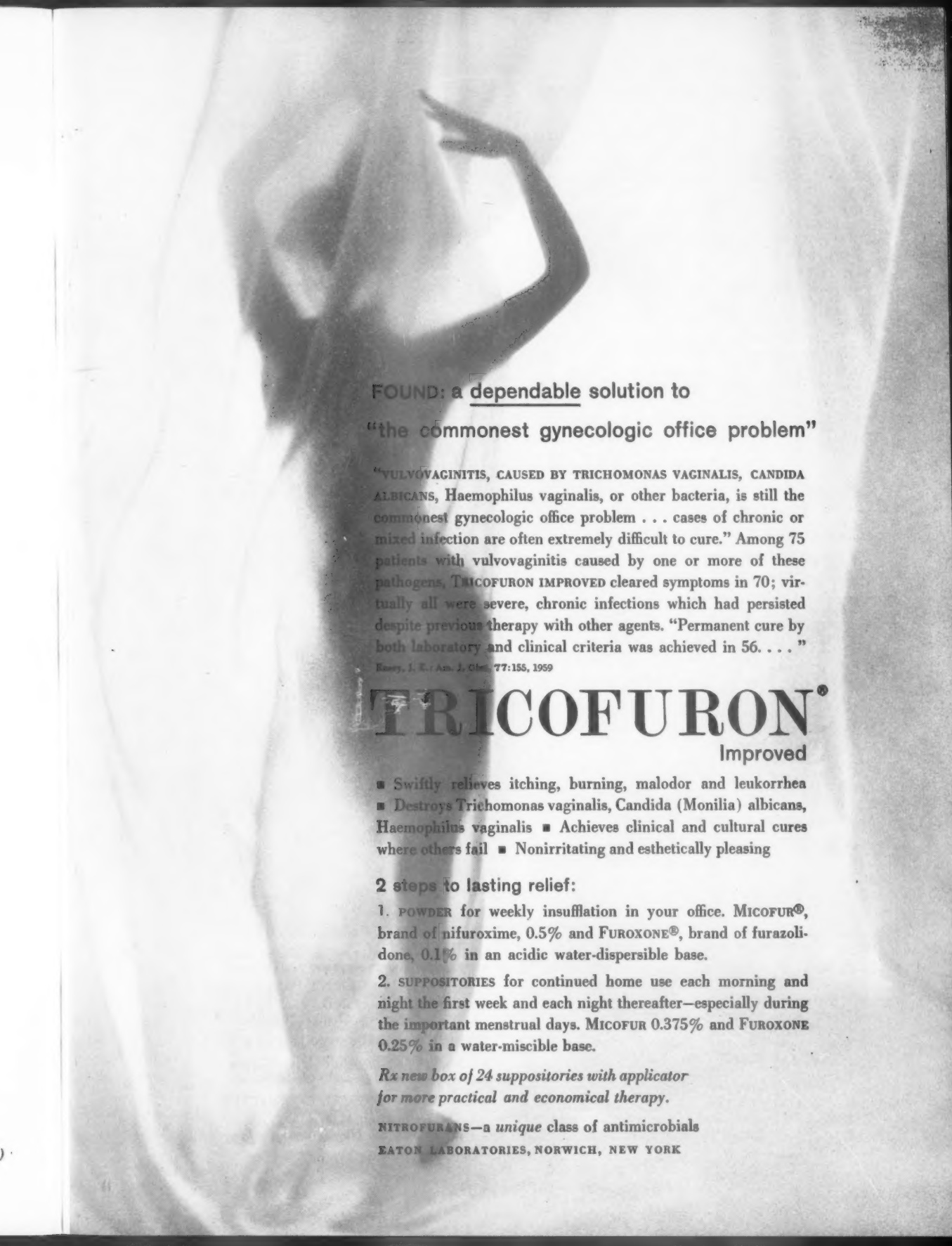
(Continued on page 450)



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Essey, J. E.: Am. J. Obst. 77:155, 1959

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■ Swiftly relieves itching, burning, malodor and leukorrhea ■ Destroys Trichomonas vaginalis, Candida (Monilia) albicans, Haemophilus vaginalis ■ Achieves clinical and cultural cures where others fail ■ Nonirritating and esthetically pleasing

2 steps to lasting relief:

1. POWDER for weekly insufflation in your office. MICOFUR®, brand of nifuroxime, 0.5% and FUROXONE®, brand of furazolidone, 0.1% in an acidic water-dispersible base.

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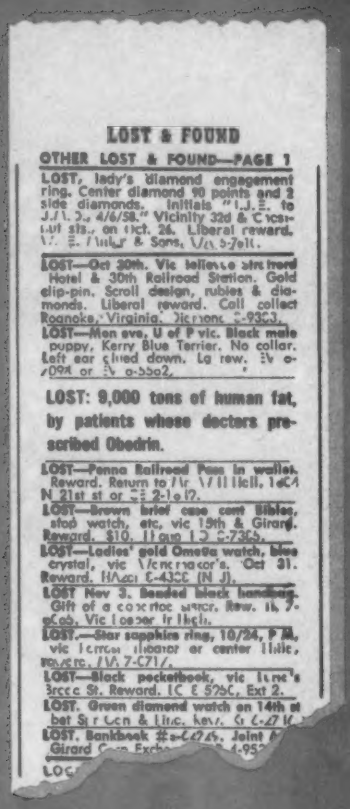

LOST & FOUND

OTHER LOST & FOUND—PAGE 1

LOST, lady's diamond engagement ring. Center diamond 90 points and 2 side diamonds. Initials "I.J.E." to J.J.S., 4/6/58." Vicinity 32d & Chestnut sts., on Oct. 26. Liberal reward. W. E. Fuller & Sons, WA 5-7011.

LOST—Oct 30th. Vic Bellevue Stratford Hotel & 30th Railroad Station. Gold clip-pin. Scroll design, rubies & diamonds. Liberal reward. Call collect Roanoke, Virginia. Dickens 5-9303.

LOST—Mon eve, U of P vic. Black male puppy, Kerry Blue Terrier. No collar. Left ear tied down. Lg rew. EV 6-0991 or EV 6-5502.

LOST: 9,000 tons of human fat, by patients whose doctors prescribed Obedrin.

LOST—Penna Railroad Pass in wallet. Reward. Return to Mr. William Hall, 1604 N. 21st st or call 2-1617.

LOST—Brown brief case cont Bibles, stop watch, etc, vic 15th & Girard. Reward. $10. Please call CE 6-7365.

LOST—Ladies' gold Omega watch, blue crystal, vic Conservator's. Oct 31. Reward. HAncock 6-4300 (N.J.).

LOST Nov 3. Beaded black handbag. Gift of a convention visitor. Rew. Ph. 7-0600. Vic Locust nr 18th.

LOST.—Star sapphire ring, 10/24, P.M. vic Lemon Hunter or center Hall, Rewards. JA 7-0717.

LOST—Black pocketbook, vic Irene's Dress Shop, 52nd & Girard. Reward. IC 6-5750, Ext 2.

LOST. Green diamond watch on 14th st bet Spruce & Pine. Rew. GR 6-4700

LOST. Bankbook #[illegible] Joint A/c Girard Coin Exchange [illegible]

LOST

Over **300,000,000 tablets of Obedrin have been administered since its introduction . . . enabling overweight patients to lose approximately 18,000,000 pounds of excess fat. (Studies show an average weight loss of 6 lbs. per 100 tablets. *)**

Obedrin and the 60-10-70 Basic Plan provide the three essentials of weight reduction:

1	2	3
Supervision by the physician	**A balanced eating plan**	**Supportive medication**

Obedrin curbs unhealthy food craving, enabling the patient to establish correct eating habits . . . first, to lose excess pounds and then, more important, to maintain optimum weight.

Each capsule or tablet provides:	
	Semoxydrine® HCl (methamphetamine HCl), 5 mg., for its anorexigenic and mood-lifting effects
	Pentobarbital, 20 mg., to guard against excitation
	Thiamine Mononitrate, 0.5 mg., Riboflavin, 1 mg., and Nicotinic Acid (Niacin), 5 mg., to supplement the diet
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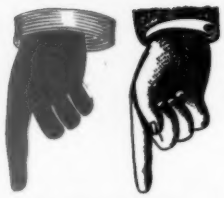
* Eichelder, Henry W.: Treatment of Obesity, The Role of the Doctor, Drug and Diet in Weight Loss, Am. Pract. and Dig. of Treat., 5:778 (Oct., 1954). Sherman, Robert J.: Weight Reduction, Med. Times, 82:107 (Feb., 1954).

Obedrin®

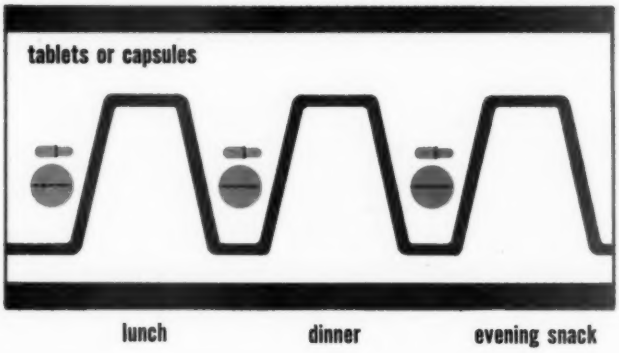
and the 60-10-70 Basic Plan

provide an effective weight-control regimen

Bristol, Tennessee - New York - Kansas City - San Francisco THE S. E. MASSENGILL COMPANY



A FLEXIBLE DOSAGE FORM PROVIDES DEPENDABLE CONTROL OF APPETITE



The Obedrin formula permits a flexible dosage schedule to depress the appetite at peak hunger periods. The physician can adjust dosage to fit each patient's need.

ADVANTAGES OF OBEDRIN—

- A dependable anorexigenic agent!
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- Minimal central nervous stimulation!
- Vitamins to supplement the diet!
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Write for 60-10-70 menus, weight charts, and Obedrin samples. Used with the 60-10-70 Basic Plan, Obedrin offers an ideal weight-control regimen for the overweight patient.

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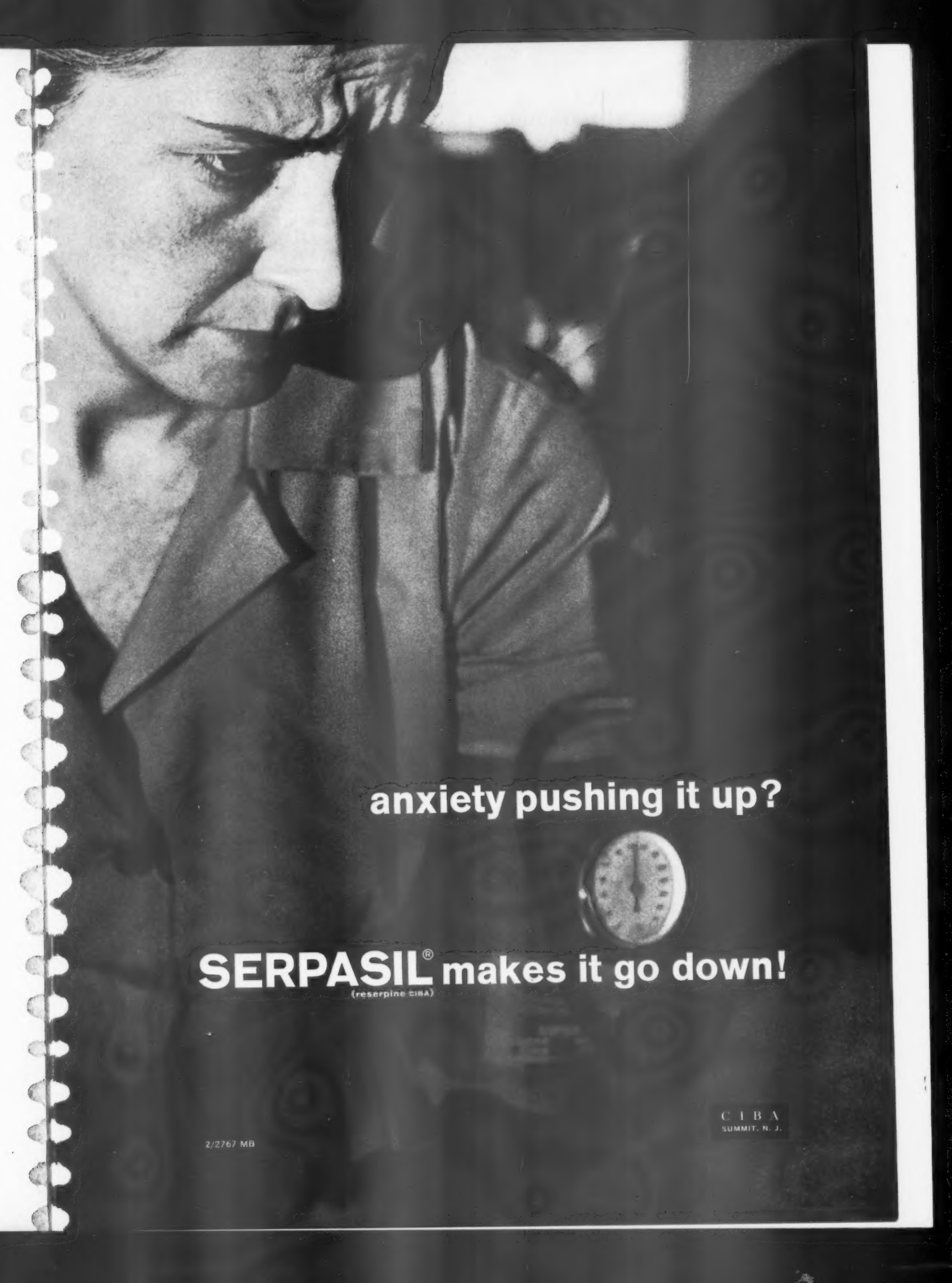
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depresses appetite and elevates mood

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(yet without overstimulation, insomnia, or barbiturate hangover.)

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MEPROBAMATE WITH D-AMPHETAMINE SULFATE LEDERLE

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(Continued on page 460)

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1960 ANNUAL MEETING

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I will arrive at _____ a.m. Date _____

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Please mail confirmation to: Name (please print) _____

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MEMBERS WISHING TO RETAIN ROOMS AFTER JUNE 12 SHOULD REQUEST CONTINUATION OF ASSIGNMENT THROUGH THE AMA MIAMI BEACH HOUSING BUREAU, P.O. BOX 1511, MIAMI BEACH, FLA., NOT LATER THAN MAY 20. ADDRESS YOUR REQUEST TO THE ATTENTION OF MR. DARYL MILLER AND INDICATE THAT YOU ARE ATTENDING THE AMWA ANNUAL MEETING JUNE 9-12.

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"tranquilaxant" treatment with
Trancopal®
keeps most patients *"on the go..."*

Since "... dysmenorrhea is a symptom complex which has no one particular origin ..."[1] tranquilaxant therapy, directed at *two* factors, has been particularly successful in alleviating menstrual pain and discomfort. The tranquilaxant, Trancopal "... combines the properties of tranquilization and skeletal muscle relaxation, with no concomitant change in normal consciousness."[2]

"...able to continue their normal activities..."[3]

Good to excellent results with Trancopal were obtained by Lichtman[3,4] in 139 of 173 patients with dysmenorrhea and premenstrual tension.[4] They "... had not only their symptoms controlled with chlormethazanone [Trancopal] but, even more important, the patients were in many instances able to continue their normal activities where previously they had been considerably restricted in their activities."[3]

Stough[5] studied 75 patients during 125 menstrual periods and found that complete or moderate relief with Trancopal was obtained during 86.4 per cent of the periods.

Shanaphy[2] reported satisfactory results with tranquilaxant treatment with Trancopal in 41 of 50 patients with dysmenorrhea; 20 of these patients had been refractory to other methods of treatment.
"Side effects were noticeably absent ..."[5]

Dosage: 100 or 200 mg. orally three or four times daily.

How Supplied: Trancopal Caplets®
100 mg. (peach colored, scored), bottles of 100.
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References: **1.** Woodbury, R. A., in Drill, V. A.: Pharmacology in Medicine, ed. 2, New York, McGraw-Hill Book Company, Inc., 1958, p. 1003. **2.** Shanaphy, J. F.: *Current Therap. Res.* 1:59, Oct., 1959. **3.** Lichtman, A. L.: *Kentucky Acad. Gen. Pract. J.* 4:28, Oct., 1958. **4.** Lichtman, A. L.: Scientific Exhibit, International College of Surgeons, Miami Beach, Fla., Jan. 4-7, 1959. **5.** Stough, A. R.: *J. Oklahoma M. A.* 52:575, Sept., 1959.

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Gratifying Therapeutic Response

ALTAFUR was found "highly satisfactory in most of the primary and secondary bacterial dermatoses treated to date," including "pyodermas . . . caused by antibiotic resistant strains of staphylococci."[1] In a nationwide survey[2] there were **94%** satisfactory results (cured or improved) among 159 patients treated with ALTAFUR for pyodermas.

Virtually Uniform in vitro Susceptibility of Staphylococcus aureus

99.5% of isolates (214 of 215) from patients with staphylococcal infections—including many antibiotic-resistant strains—proved sensitive in vitro to ALTAFUR in tests conducted across the nation.[3] **99.7%** of staphylococcal isolates (334 of 335) at a large general hospital—including many antibiotic-resistant strains—proved sensitive in vitro to ALTAFUR.[4]

Wide, Stable Antimicrobial Spectrum

"Because of its relationship to previously developed nitrofurans, it is anticipated that [ALTAFUR] will retain its original spectrum after longstanding clinical usage."[5] Development of significant bacterial resistance to ALTAFUR has not been encountered to date.[6]

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Side effects are easily avoided or minimized by these simple precautions: 1) *alcohol should not be ingested in any form, medicinal or beverage, during* ALTAFUR *therapy and for one week thereafter* 2) each dose should be taken with or just after meals, and with food or milk at bedtime (to reduce the likelihood of occasional nausea and emesis).

1. Weiner, A. L.: Paper presented at the Conference on Recent Advances in the Treatment of Chronic Dermatoses, University of Cincinnati (Ohio), Nov. 5, 1959. 2. Compiled by the Medical Department, Eaton Laboratories, from case histories received. 3. Christenson, P. J., and Tracy, C. H.: Current Therapeutic Research 2:22, 1960. 4. Glas, W. W., and Britt, E. M.: Proceedings of the Detroit Symposium on Antibacterial Therapy, Michigan and Wayne County Academies of General Practice, Detroit, Sept. 12, 1959, p. 14. 5. Leming, B. H., Jr.: Ibid., p. 22. 6. Investigators' reports to the Medical Department, Eaton Laboratories.

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and 50 mg. (pediatric)
bottles of 20 and 100

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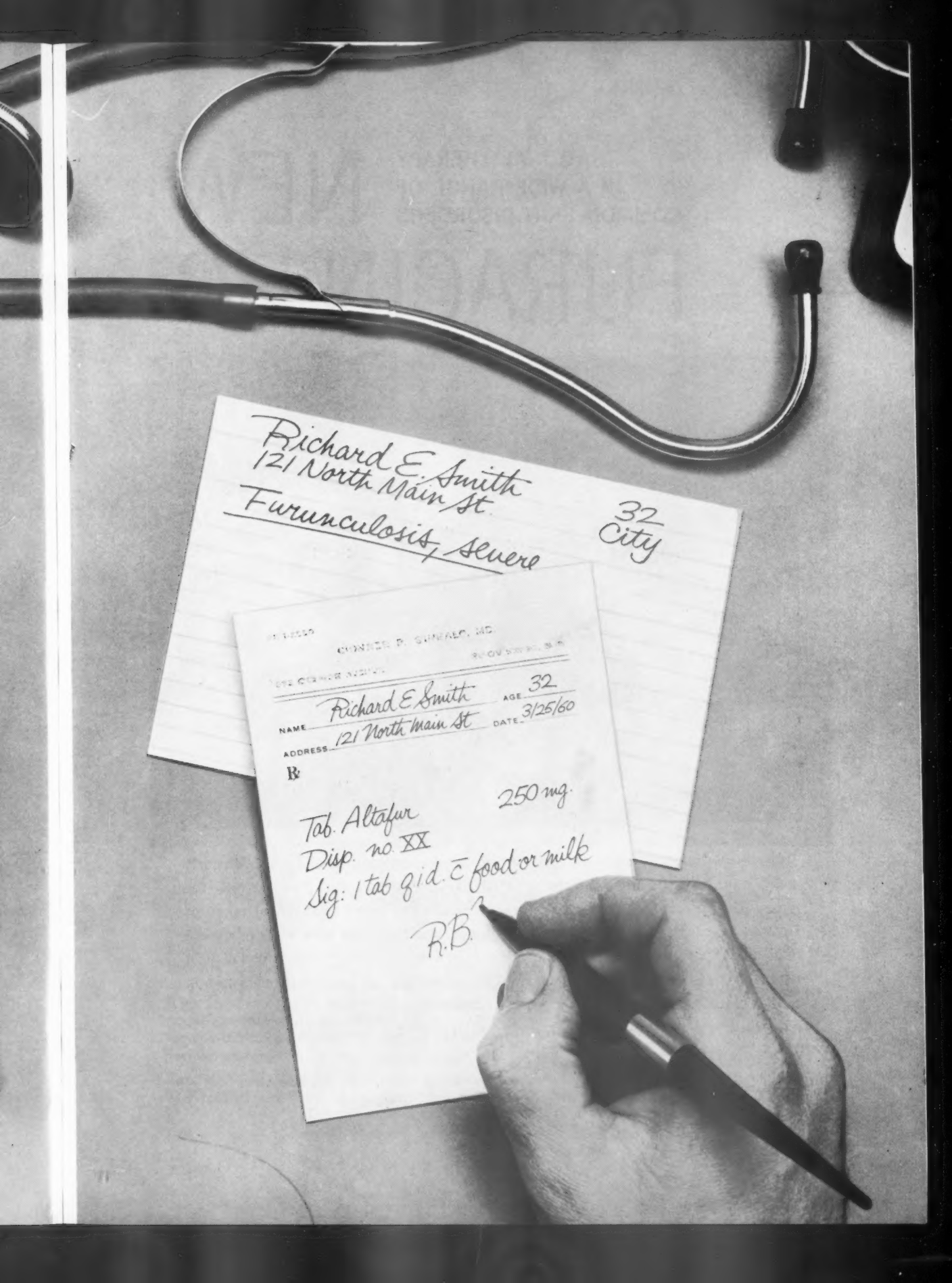
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Control hemorrhage promptly & safely

with "PREMARIN" INTRAVENOUS

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1. Randall, L. M. 2. Reich, W. J., Rubenstein, M. W., Nechtow, M. J., and Reich, J. B. (literature available on request).

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(Continued from Page 454)

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(Continued on page 464)

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1960 ANNUAL MEETING

The Carillon, Miami Beach, Fla. *June 9-12, 1960*

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Friday, June 10— Luncheon: No. of reservations _____
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Dinner: No. of reservations _____ @ $7.50 each $_____

Saturday, June 11—Luncheon: No. of reservations _____ @ $5.00 each $_____
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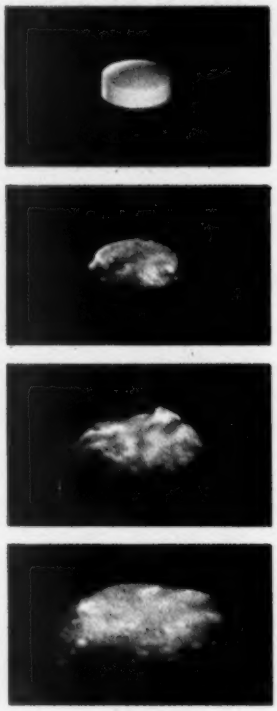

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REFERENCES:

1. Chow, B. F.: Gerontologia 2:213-221, 1958.
2. Chow, B. F., et al.: Am. J. Clin. Nutrition 6:386, 1958.

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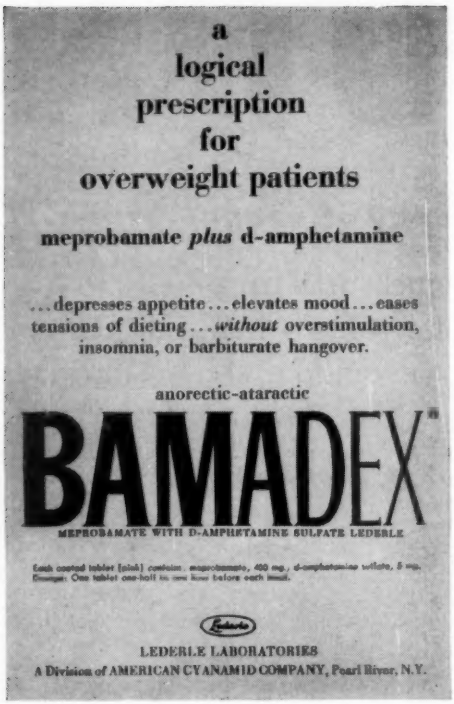

American Medical Women's Association, Inc.

BRANCH OFFICERS, 1959-1960

(Continued from Page 460)

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Secretary: Mary M. Martin, M.D., 3035 Clifton Ave., Cincinnati 20.

Meetings held second Tuesday, September, November, January, March, May.

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President: Rose Herman, M.D., 431 Osborn Bldg., Cleveland 15.

Secretary: Jane McCollough, M.D., 4345 Acacia Drive, Cleveland 21.

(Continued on page 466)

American Medical Women's Association, Inc.

1960 ANNUAL MEETING

TOURS

Friday, June 11, 2:30 to 5:30 p.m.

2:30 p.m.—Tour: The Geriatric Clinic at the Jackson Memorial Hospital, and teaching hospital, University of Miami School of Medicine, Dr. Samuel Gertman, conductor

3:30 to 5:30 p.m.—Rehabilitation facilities. Four different plans for retirement—living and financial arrangements, medical services, and activity programs

1. Rehabilitation Center for Crippled Children
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   - D. Covenant Palms—Evangelical Mission Covenant—Church of America Community for the Retired

Sunday, June 13, 5:00 p.m.

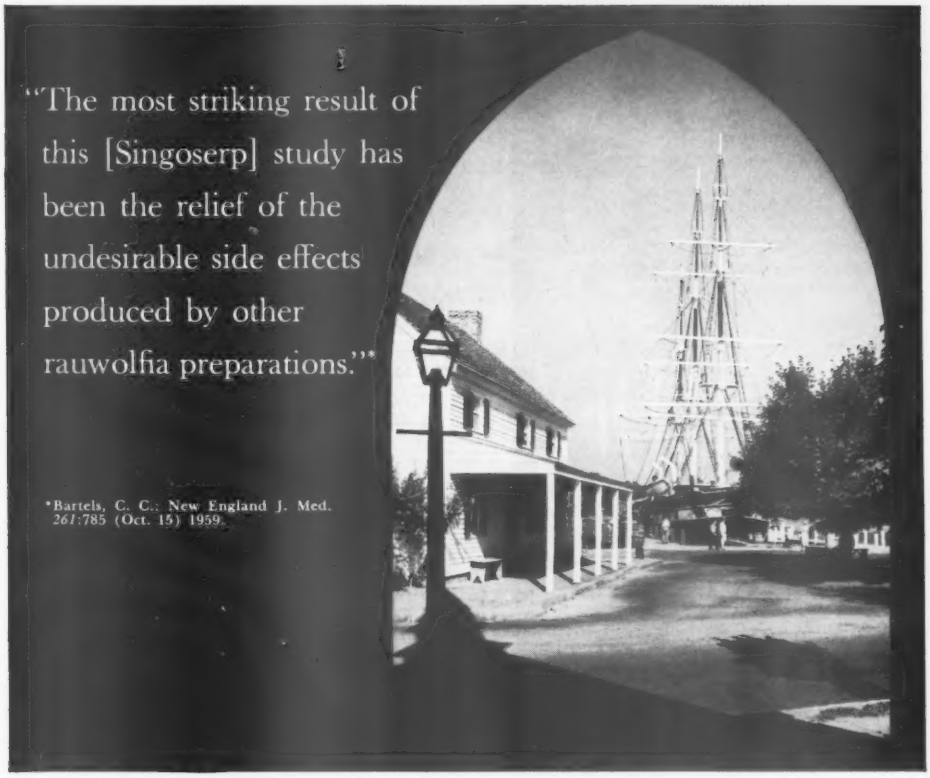
Visit and tea at the Blackstone Hotel—"Florida Living for the Retired"

I will go on the tour and have _____ guests. I will attend the tea and have _____ guests

Name of member (Please print) _____

Please send this reservation form to the AMERICAN MEDICAL WOMEN'S ASSOCIATION, INC., 1790 Broadway, New York City 19, NOT LATER THAN JUNE 1, 1960

from the New England Journal of Medicine: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*Bartels, C. C.: New England J. Med. 261:785 (Oct. 15) 1959.

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Side Effects	Incidence with Prior Rauwolfia Agent	Incidence with Singoserp
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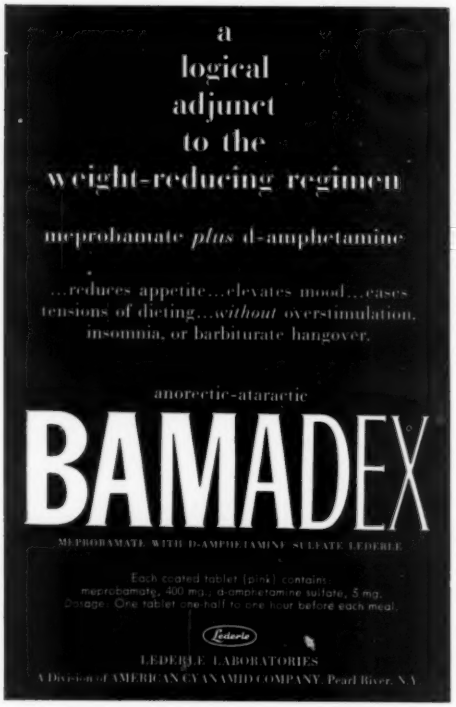

American Medical Women's Association, Inc.

BRANCH OFFICERS, 1959-1960

(Continued from Page 464)

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Secretary: Vera Barzd, M.D., Mayview Hospital, Mayview, Pa.

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Meetings held each April, in conjunction with state medical meeting.

(Continued on page 468)

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1. Franklin, M., et al.: Chelate Iron Therapy, J. A. M. A. 166:1685, 1958.
2. A. M. A. Council on Drugs: New and Nonofficial Drugs, J. A. M. A. 171:891, 1959.
3. A. M. A. Committee on Toxicology: Accidental Iron Poisoning in Children J. A. M. A. 170:676, 1959

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American Medical Women's Association, Inc.

BRANCH OFFICERS, 1959-1960

(Continued from Page 466)

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(Continued on page 522)

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Journal of the
AMERICAN MEDICAL WOMEN'S ASSOCIATION

Volume 15 May, 1960 Number 5

Some Anatomic and Physiologic Changes Produced by Interruption of the Coronary Sinus Flow: An Experimental Study

Bernard Maisel, M.D., Daniel W. Davis, M.D.,
William Cooper, M.D., Edward Goldsmith, M.D.,
Emilina Melencio, M.D., and Frank Glenn, M.D.

FOR SEVERAL YEARS our group, like others in this country and abroad, has been impressed with the work of Robertson,[1,2] Fauteaux,[3] Gross and co-workers,[4,5] and particularly with the monumental studies of Claude Beck and his co-workers,[6-9] concerning the effects of coronary sinus obstruction upon the myocardium and the possible application of this anatomic procedure to the problem of myocardial ischemia.

Many early anatomists and physiologists had believed that the coronary arterial system was an end artery type, with little anastomosis between the right coronary arterial bed and the vascular beds of the two great branches of the left coronary artery. There was indistinct appreciation of possible arterial and venous communications in the myocardium. In 1706 Vieussens,[10] by perfusion of the coronary arteries, and in 1708 Thebesius,[11] by perfusion of the coronary venous sinus, demonstrated arterial and venous communications with the ventricular chambers. During the past four decades, the classic studies of the investigators already cited, as well as those of Wearn and co-workers,[12-14] Prinzmetal and co-workers,[15-16] Bailey and others,[17-18] and Schlesinger,[19] have demonstrated the presence of interarterial, arteriovenous, arterioluminal, arteriosinusoidal, veno-sinusoidal-luminal, venovenous, venous-extracardiac mediastinal anastomoses, and arterial-extracardiac mediastinal anastomoses. As a result of these studies, we feel that the coronary arterial circulation cannot be regarded as one that simply carries blood from artery through capillary bed to venous bed with return to the right auricle.

From the Department of Surgery, The New York Hospital–Cornell University Medical Center, New York City.

This study was aided by a grant from the New York Heart Association, Inc.

Since these many intramyocardial cross shunts and collaterals are known to exist, it is entirely plausible to develop procedures that would shunt arterial blood from myocardium supported by a normal blood supply to myocardial segments deprived of blood as a result of segmental arterial occlusion or arterial narrowing. Arterial blood apparently most frequently takes the hemodynamic path of least resistance, progresses rapidly from the arterial bed through the capillary bed to the venous bed in its individual anatomic segment, and thus drains to the right auricle.

In 1881, Cohnheim and von Schulthess-Rechberg[20] interrupted the coronary sinus flow of dogs, with uniformly unfavorable results. In 1934 Robertson reported the ligation in stages of the venous sinus and of all coronary veins and stated that "these ligatures were well tolerated by all animals." In 1937 Bloom, Gross, and Silverman ligated or occluded by escharotics the coronary venous sinus of dogs in an attempt to increase the blood supply to the myocardium, with a mortality of 33 to 50 per cent. These investigators reported a marked increase in the arterial vascular pattern as noted in post-mortem roentgenograms of the vascular tree injected with barium sulfate. Dogs protected by interruption of coronary sinus flow were reported by these investigators to have no myocardial infarcts or very small myocardial infarcts following deliberate ligation of the anterior descending coronary artery. Beck and his group have employed partial interruption of the coronary venous sinus flow along with abrasion of the epicardium to improve myocardial blood flow. In 1946 Fauteaux reported the use of coronary sinus tie-off and pericoronary neurectomy in dogs for protection against ligation of the circumflex artery. This investigator reported 16 clinical cases performed in the years 1940 to 1946. He suggested that 11 were alive and well and free of angina in 1946. No further follow-up information is available.

We have been intrigued with all the foregoing experience. Much controversy has justifiably developed about all the procedures directed at myocardial revascularization, since there has been no good anatomic and physiologic method for evaluating the effects of a particular procedure on the myocardium. Too, the dog may be a poor experimental animal for the study of myocardial revascularization methods, since its coronary arterial anatomy may not be quite similar to that of the human being. These experimental animals are young and healthy and their myocardium is well vascularized and prepared to withstand astounding trauma. Nevertheless, these dogs are inexpensive, available, and readily adaptable to these experimental procedures.

We should like to report our method of coronary sinus ligation employing the prone position ("Rotisserie") operating table (Fig. 1). Using our simplified technique,[21] we have been able readily to perform sinus ligation

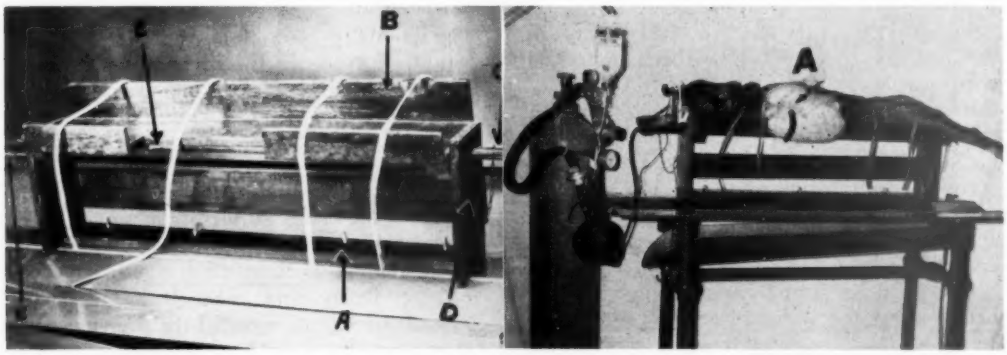

Fig. 1. *(Left)* The prone position operating table is fixed to the standard animal operating table by "C" clamps (A). The cradle (B) of this table is fixed to an axle rod (C) and can be rotated clockwise or counterclockwise on this rod. The position of the cradle is maintained by dowel rods (D). The cutout (E) of this table is large enough to afford access to the left side of the chest from anterior ribs three to seven. *(Right)* The dog is anesthetized intravenously with pentobarbital and placed in the cradle of the prone position operating table. The chest is positioned so that the point of cardiac maximum impulse is in the middle of the cutout of the operating table. The canine trunk is comfortably and well supported in the cradle. An endotracheal tube is inserted and attached to an intermittent positive-pressure oxygen apparatus. An intravenous infusion is begun in the front leg. A circumscapular incision is made from the sternum to the spine (A).

with little or no mortality and to complete extensive anatomic and physiologic studies upon these hearts before and after interruption of coronary sinus flow.

PROCEDURE

Ninety-nine mongrel dogs, weighing 25 to 40 lb., were included in this study. These animals were anesthetized intravenously with pentobarbital sodium, 0.1 Gm. per pound of body weight. The chest and abdomen were shaved, and the dog was placed on the Rotisserie operating table (Fig. 1). An endotracheal tube was introduced and the cuff inflated for an airtight fit. Respirations were maintained on the Pneumophor mechanical respirator. An intravenous infusion was started in a leg vein. The poles of an electrocardiograph were placed on the fore and hind legs and on the chest.

After surgical preparation of the skin with triple application of tincture of benzalkonium (Zephiran) chloride and an adequate drape of the operative field and tables, a long intercostal incision was made from vertebral column to sternum, along the interspace corresponding to the point of maximum impulse of the heart. The mediastinum was approached with equal ease through thoracotomy, either on the right or the left side. After the thorax was entered, the lungs were packed away and a self-retaining retractor was introduced to spread the ribs. The pericardium was incised along the course of the phrenic nerve from the great vessels at the base of the heart to the apex. Care was exercised that the opposite pleural cavity was not entered by accidentally incising the mediastinal pleura at the apex of the heart. The pericardial edges were retracted by sutures fixed to the table drapes. The table was rotated toward the operator, who was seated on a stool. The heart was easily delivered from the thoracic cavity and hung from aorta, pulmonary artery, pulmonary veins, and vena cava. Gravity maintained exposure of the heart, particularly of its dorsal aspect, exposing the coronary sinus as it entered the right auricle (Fig. 2). The coronary venous sinus was dissected from the surrounding epicardial fat at its point of entry into the right auricle. Traction sutures were placed beneath the sinus to control this vessel for introduction of a catheter for sinus pressure studies. These traction sutures were later tied down and the coronary sinus divided between these doubly placed silk ties.

Fig. 2. The heart is exposed in the opened pericardium and the pleural space is then made dependent by rotating the table to the right, or counterclockwise. The heart is delivered out of the chest. Gravity maintains this position of the heart. The coronary vein and sinus and the dorsal aspect of the right auricle are easily exposed. The heart is moistened with isotonic sodium chloride solution and is steadied in the cupped hand of the operator's assistant. Traction sutures "B" reflect the open pericardium. Arrow "A" indicates the point of interruption of the coronary sinus flow as it enters the right auricle.

Thirty-seven dogs comprised group 1 and 52 dogs group 2. There were 10 control dogs. All group 1 animals had electrocardiograms taken before sinus ligation, immediately after sinus ligation, and at intervals of one week to 16 months in various animals. Transaminase determinations were done on venous leg blood of 2 dogs in group 1 and of 7 dogs in group 2 before and after sinus ligation and at intervals up to 16 months. In group 1 blood pressure studies of the auricles, ventricles, coronary sinus, and, in 5 animals, of the aorta were obtained by means of a catheter introduced into these chambers or vessels, and the pressures were recorded on a Sanborn electromanometer and a polyviso recording unit.

These pressures were determined before and immediately after coronary sinus ligation and division and were repeated and recorded at secondary thoracotomies performed upon this group of animals at time intervals of one week to 16 months after initial thoracotomy and interruption of sinus flow.

Clearance studies of radioactive sodium (Na^{24}) were performed on 5 dogs in group 1. This radioactive material was injected into the ventricular myocardium at the cardiac apex. At 15 second intervals, Geiger count determinations were made of the degree of radioactivity persisting in the left ventricle of the myocardium at the site of injection. The counting probe was held manually in apposition to the point of myocardial injection. These determinations and the rate of disappearance were plotted against time to evaluate effective total ventricular myocardial blood flow before and after interruption of coronary sinus flow (Fig. 3).

At thoracotomy, the gross anatomy of the vascular pattern of the heart and mediastinum

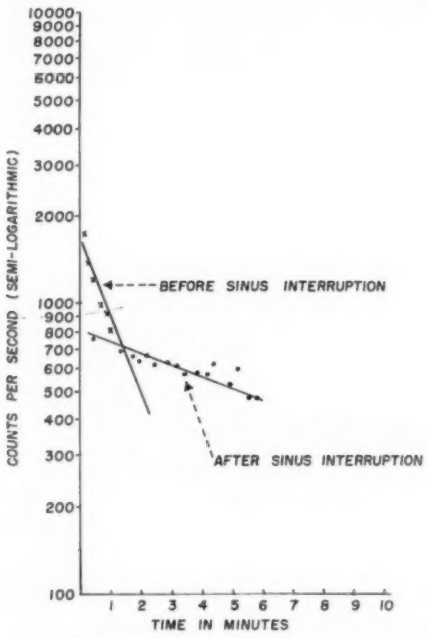

Fig. 3. The curves established on the rate of disappearance from the left ventricle of the myocardium of Na^{24} suggested a definite decrease in the amount of myocardial blood flow after interruption of the coronary sinus flow, and this effect persisted for six weeks. At the end of 12 weeks the curve was normal, and at this time the myocardium appeared bright red and normal.

was studied before and after interruption of coronary sinus flow, and these studies were repeated at secondary thoracotomies performed at intervals of two days, four days, and one week successively to 16 months. Post-mortem anatomic studies were made of the heart, lungs, and mediastinal tissue specimens of 5 control animals and 15 animals of group 1 and 2. These dogs were sacrificed at intervals of one week to 16 months after sinus flow interruption. The heart, lungs, diaphragm, and mediastinal structures, along with the sternum and anterior portions of the ribs, were removed intact. All these mediastinal tissues were removed in one block. The aorta was carefully opened along the dorsal aspect to the region of the aortic cusps. Polyethylene catheters were introduced into the ostia of the coronary arteries and fluid tightness was established with circumferential purse-string sutures of 000 silk (Fig. 4). The pericardium and mediastinal adhesions were not separated from the heart except in the region of the obstructed coronary sinus. The sinus was dissected free proximal to its point of obstruction and was opened, and a polyethylene catheter was sewed therein. The inferior vena cava was tied as it entered the right auricle. A polyethylene catheter was introduced into the right auricle through the superior vena cava and tied into place with 000 silk suture. The arterial and venous beds of this fresh preparation were perfused with a polycyclic hydrocarbon solvent (Varnolene), introduced by means of an infusion bottle having a fluid pressure of 100 mm. Hg for arterial perfusion or 5 mm. Hg pressure for the venous perfusions, or by means of a 10 cc. syringe. Employing the syringe, 5 cc. of air was introduced along with 5 cc. Varnolene. The air broke up into myriads of bubbles and acted as an observable signal to aid in tracing the course of the Varnolene through the arterial or venous systems of the myocardium and mediastinal areolar tissue.

At the completion of this part of the myocardial perfusion, 100 cc. Varnolene was pigmented with vermilion red and another 100 cc. with lamp black. These pigments have a particle size of 2 to 4 $m\mu$. These pigmented solutions were perfused into the arterial (red) and venous (black) systems and the course was noted. Slow-motion (64 frames per second) movies with 16 mm. Kodachrome film were taken. The specimens were then sectioned and the presence of the pigmented

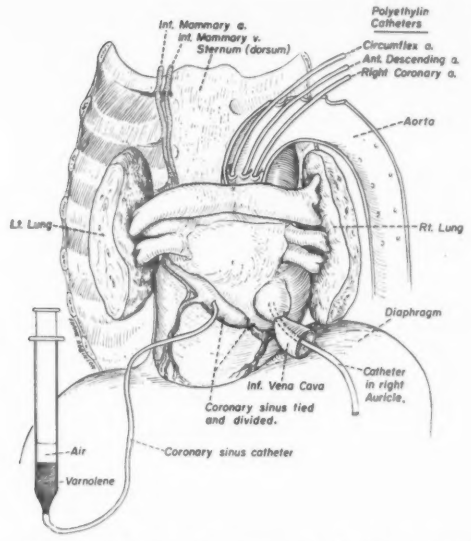

Fig. 4. Post-mortem anatomy of the heart, lungs, and mediastinal tissue specimens was studied. The heart, lungs, diaphragm, and mediastinal structures along with the sternum and anterior portions of the ribs were removed intact. The aorta was opened along its dorsal aspect to the aortic cusps. Many animals had three coronary ostia. The coronary sinus was freed at the point of interruption of flow and a polyethylene catheter was tied into the proximal or blind end. A polyethylene catheter was tied into the right auricle through the vena cava. The arterial and venous beds of this fresh preparation were perfused with Varnolene introduced by an infusion bottle at respective vessel system pressures and by the syringe method.

Varnolene was noted in the myocardium and the mediastinal areolar tissues. Myocardial sections of the ventricles and the sections of the coronary sinus through the vessel proximal to its point of division were then obtained and stained with hematoxylin and eosin.

Microanatomy of the ventricular myocardium and pericardium was studied before and after interruption of coronary sinus flow. A full-thickness segment of the left ventricular wall, including endocardium and epicardium, was obtained from the apex of the heart of each of 10 dogs in group 1 prior to coronary sinus ligation and division. A similar section of the ventricular wall and of mediastinal pericardiac adhesions was obtained at secondary thoracotomies or at autopsy in sacrificed animals at intervals of one week to 16 months after initial thoracotomy and sinus ligation. These specimens were fixed in 10 per cent formalin and stained with hematoxylin and eosin. All of these sections were submitted to four examining physicians as unknowns for blood vessel counts per high-power microscopic field. The total blood vessel count was made in five random microscopic fields and recorded, and an average was obtained for each muscle biopsy. In addition, the examining physician drew a conclusion on each unknown, indicating whether the particular slide represented ventricular myocardium before or after interruption of coronary sinus flow.

In the 52 animals comprising group 2, thoracotomy of the right side was performed and the coronary sinus tied and divided. Cushing's silver brain clips were fixed to the ties of the divided coronary sinus. Clips were fixed along the interventricular septum and along the course of the circumflex coronary artery. These clips provided anatomic landmarks in subsequent angiography of the coronary artery. The dog's chest was closed in layers with cotton.

Coronary arterial angiography was employed to study the physiologic anatomy of the coronary arterial bed. The femoral artery was exposed and under fluoroscopy an 8 F. woven catheter was readily passed through the femoral artery up the aorta and around the arch to the region of the aortic cusps. The lumen of the catheter was carefully heparinized. Ten cubic centimeters of 30 per cent Urokon Sodium (sodium 3-acetamido-2,4,6 triiodobenzoate) was injected through the catheter to the base of the aorta. Films of the myocardial blood flow of this contrast agent were recorded at half-second intervals on an F.X.R. rapid-changing roll-film magazine machine.

Forty-seven of the animals of group 2 were subsequently submitted to interruption of arterial flow at intervals following interruption of coronary sinus flow. This study has continued and will be reported.

RESULTS

Ten dogs of group 1 died as a result of avoidable technical errors: One dog died as a result of a large tear in the coronary sinus, resulting in uncontrollable hemorrhage. One dog died of uncontrolled bleeding from the site of the left ventricular muscle biopsy. One dog died as a result of the inadvertent dislodgment of an endotracheal tube, which went unrecognized until suffocation had occurred. Six dogs died of fibrillation resulting within a matter of one minute of the injection of Na^{24} into

the ventricular myocardium at the initial thoracotomy. In later studies the Na^{24} solution was made isotonic and was therefore better tolerated. One dog died two weeks after the initial thoracotomy as a rsult of hemorrhage from the site of the ventricular muscle biopsy. The sutures had cut through the ventricular muscle.

Thus 27 dogs made up experimental group 1. These 27 were submitted to 56 operations. All 27 survived ligation of the coronary sinus at the initial procedure and the pressure studies of coronary sinus, auricles, ventricles, and aorta. Two dogs of this group of 27 died of empyema two and four weeks after sinus ligation and pressure studies. One dog died on the fourteenth postoperative day, but unfortunately no autopsy was obtained. Three mortalities in this group of 27 must be considered postoperative, but 2 were certainly avoidable. Each of these animals had been subjected to two thoracotomies for pressure and clearance studies. The death of 1 dog cannot be explained.

CARDIAC PRESSURE STUDIES

At the initial thoracotomy the coronary sinus pressure in 27 dogs ranged from 10/5 to 25/15 mm. Hg and averaged 15/7. The coronary sinus pressure immediately following ligation ranged from 72/20 to 154/40 mm. Hg and averaged 104/37. One week later the sinus pressures in 2 dogs were 90/35 and 110/40 mm. Hg. Two dogs explored two weeks later showed a sinus pressure of 100/40 and 95/40 mm. Hg. The sinus pressure in 4 dogs one month after ligation was 85/35, 90/35, 110/35, and 98/42 mm. Hg. The sinus pressure in 3 dogs explored three months after interruption of sinus flow was found to be 20/1, 15/5, and 18/7 mm. Hg, which was considered normal. The sinus pressures of 6 dogs studied 6 months after the procedure, of 2 dogs studied 12 months after sinus division, and of a single animal measured 16 months after the procedure were all normal.

At the initial thoracotomy the left auricular pressure ranged from 10 to 30 mm. Hg and averaged 10. These pressures were similar at subsequent thoracotomy. The right auricular pressure ranged from 5 to 20 mm. Hg and averaged 15; these were also similar at subsequent thoracotomy. The left ventricular pressure ranged from 70/50 to 120/70 mm. Hg and averaged 90/70; these were unchanged at subsequent thoracotomy. The aorta pressures were similar to those of the left ventricle. The right ventricular pressure ranged from 40/20 to 90/60 mm. Hg and averaged 50/30; these were similar at subsequent thoracotomy.

GROSS ANATOMY OF THE HEART AFTER SINUS DIVISION

Immediately after interruption of the coronary sinus flow there was a dramatic change in the appearance of the ventricular myocardium of each animal, particularly prominent in the left ventricle, which became deep red and cyanotic. In some animals this redness and cyanosis extended across the interventricular septum to involve a small anterior and posterior area of the right ventricle. No change was noted in cardiac rhythm. The volume of the heart became enlarged, particularly that of the left ventricle. In some animals it was difficult to replace the heart into the pericardium. Within two or three minutes after interruption of coronary sinus flow, all coronary veins coursing over the ventricle, but particularly those on the left side, became markedly engorged and prominent. Five minutes after interruption of sinus flow, a gray, glistening change suggestive of edema developed about the veins of the left ventricle and spread over the entire left ventricle. Scattered petechial hemorrhages appeared over the left ventricle.

One week later the pericardium and mediastinal fat were fixed to the heart, particularly over the ventricles, by fibrinous adhesions that obliterated most of the pericardiac cavity. When these fibrinous adhesions were separated, bright red arterial and darker venous blood oozed from the epicardial surface. Hand lens examination of the epicardium of the left ventricle disclosed myriads of dilated venules and arterioles. The oozing and bleeding came from vessels in the pericardium, in which had developed obliterative pericarditis. This oozing was controlled only by repeated applications of thrombin or warm, moist saline sponges. Dogs examined two and four weeks after sinus flow interruption showed the aforementioned changes and, in addition, the mediastinum seemed boggy, edematous, and vascular. The mediastinal areolar tissue contained edematous fat through which coursed prominent and enlarged veins and arteries. Fibrous adhesions were developing to fix the ventricular myocardium, particularly on the left, to

the pericardium and mediastinal edematous areolar tissue and fat. The lung was fixed at the point of incision of the pericardium. Dogs examined at 3, 6, 12, and 16 months were found to have edematous, thickened, mediastinal areolar tissue that had become vascular and confluent with the pericardium and was fixed to the ventricular myocardium, particularly on the left side, by short, stubby, vascular adhesions that obliterated the pericardial space. Attempts to separate the heart from the pericardium produced much oozing from fine epicardial vessels.

Two weeks after the initial interruption of sinus flow, the gray, glistening, edematous ventricular myocardium had become more normal in appearance. Ninety days afterward the ventricular myocardium no longer appeared deep red and cyanotic but was now a healthy bright red, and over its surface coursed a dilated and amplified arterial and venous pattern. No scarring of the ventricular or auricular myocardium was noted in any of these dogs. There was no consistent location of adhesions and no consistent amount of adhesions between myocardium and mediastinal tissues; however, these were largely about the left ventricle.

MICROSCOPIC ANATOMY OF THE HEART AFTER SINUS DIVISION

Histological examination of the ventricular muscle biopsies by blood vessel count failed to disclose an increase in the number of myocardial blood vessels. On the basis of the number of blood vessels per high-power field there was no consistent success in differentiating myocardium before ligation from myocardium after ligation, or from 10 controls. Attempts to identify in the formalin-fixed sections the gray edematous material that developed over the left ventricle after sinus ligation failed. If this was edema, the exudate did not contain sufficient quantities of protein to accept the eosin stain.

ELECTROCARDIOGRAMS

Electrocardiograms taken on 14 dogs before and after interruption of sinus flow, with standard and augmented leads, and taken serially at intervals to 16 months, showed a variety of changes. Immediately after interruption of flow there were S-T segment and T wave changes, predominantly in leads 2, 3, and aVF in 5 animals. These changes showed progressive evolution 2 to 70 days after ligation. None of these five records returned to normal during this period of time. One dog had questionable S-T segment changes. The remaining dogs showed no electrocardiographic change from the normal preoperative record. The S-T and T wave changes indicated epicardial injury and ischemia of the posterior side of the heart. One animal had reciprocal S-T wave changes in the anterior leads 1 and aVL. One animal showed T wave changes suggesting ischemia of the anterior side of the heart. The S-T and T wave changes were compatible with pericarditis. The amplitude of the QRS complex in 4 animals was decreased in all leads immediately after ligation, but was increased to near normal amplitude in the follow-up electrocardiograms. This suggested diffuse myocardial disease or a pericardial effusion with return to normal after a period of healing and adjustment. In no animal did new Q waves develop to imply a myocardial infarction.

PERFUSION STUDY OF THE HEART-LUNG PREPARATION

Varnolene perfusion of the coronary arteries and sinus of the normal heart, lungs, and mediastinal fat preparation demonstrated communications between the circumflex coronary artery and the left anterior descending branch of this vessel. In 2 normal specimens, the right coronary arterial bed communicated with the left anterior descending artery. Communications were demonstrated between the circumflex coronary artery and the peribronchial areolar tissue arteries as well as with vessels in the areolar tissue about the base of the aorta. No collaterals were demonstrated between coronary arteries or sinus and vessels in the mediastinal fat or vessels at the diaphragm. Perfusion of the right coronary artery in 3 normal specimens demonstrated communications with the peribronchial arteries and those in the areolar tissue about the superior and inferior vena cava. To reach the latter, the Varnolene traveled in the myocardium of the right auricle.

Retrograde perfusion of the normal coronary sinus revealed many communications of the venous bed of the right and left sides of the myocardium. There were some collaterals to veins in the mediastinal areolar tissue about the bronchi, at the base of the aorta, and

about the inferior and superior vena cava. No communications were noted with vessels in the fat of the pericardium.

Perfusions carried out in experimental animals 2 and 4 weeks, and 2, 3, 6, 12, and 16 months, after interruption of coronary sinus flow disclosed much additional collateral circulation. Perfusion of the right coronary artery revealed ample and abundant communication with the catheter placed in the left anterior descending coronary artery, and small amounts of Varnolene drained from the catheter in the circumflex artery. Moderate amounts of Varnolene drained into the right auricle and large amounts from the catheter fixed in the coronary sinus proximal to its point of interruption of flow. These vascular channels were patent as early as 8 weeks after sinus ligation and persistent 16 months afterward.

Perfusion of the anterior descending artery resulted in drainage from the catheters in the right coronary artery, the left circumflex coronary artery, and from those in the right auricle and the obstructed coronary sinus.

Perfusion of the circumflex artery resulted in drainage from the left anterior descending artery, the right coronary artery, the right auricle, and from the catheter placed in the obstructed coronary sinus. In 2 animals at three months and 1 animal at six months, vermilion-stained Varnolene perfused into the circumflex artery promptly appeared in the coronary sinus and the right auricle.

Lamp-black-stained Varnolene introduced into the coronary sinus drained into the right auricle after coursing through the myocardium of both ventricles. Some of this lamp black Varnolene drained from the catheters placed in the circumflex and right coronary arteries.

All specimens from 8 weeks to 16 months revealed, on perfusion, widely patent communications between the circumflex coronary artery and the peribronchial areolar tissue arteries, and the areolar tissue arteries of the mediastinum about the pericardium. Similar communications with these peribronchial arteries and mediastinal pericardial areolar tissue arteries were shown by perfusion of the right coronary artery. Large, widely patent communications were noted between the coronary sinus and the peribronchial areolar tissue veins and the areolar tissue of the mediastinum, and the fat about the pericardium as far distally as the superior surface of the diaphragm. In 2 dogs, 1 at 3 months and 1 at 16 months, a single vessel was identified by hand lens in the fat overlying the pericardium at the apex of the left ventricle which drained vermilion-stained Varnolene upon perfusion of either the circumflex coronary or the right coronary artery. This very same vessel was found to drain lamp-black-stained Varnolene upon perfusion of the coronary sinus proximal to its point of ligation. Kodachrome movies were used to record and study this phenomenon. Thus, this same vessel in the pericardiac mediastinal fat could be made to "bleed" black or red Varnolene from any of the afore-mentioned vascular systems. In many dogs, the left coronary ostium was really two openings, one for the circumflex and the other for the anterior descending coronary artery. Many variations of the coronary arterial ostia were noted.

MYOCARDIAL CLEARANCE STUDIES

Na^{24} injected into the ventricular myocardium is a very distressing irritant of the ventricular myocardium, even in a diluted solution. Six dogs in group 1 died of ventricular fibrillation that developed within a minute of the injection of Na^{24} into the ventricular myocardium at the initial thoracotomy. Na^{24} in an isotonic-buffered solution was less irritating. The curves established on the rate of disappearance (Fig. 3) suggested a definite decrease in the amount of myocardial blood flow following interruption of coronary sinus flow, and this effect persisted for six weeks. Four weeks after coronary sinus occlusion the rate of disappearance of injected Na^{24} began to approach that of normal, and at the end of 12 weeks it was normal. This definite decline or slowing of myocardial blood flow after coronary sinus occlusion, as measured by Na^{24}, correlated with the gross appearance of the heart. While the heart appeared deep red and cyanotic the flow was impaired, but after 12 weeks, when the myocardium appeared bright red and normal, the disappearance curve of Na^{24} approached normal.

TRANSAMINASE STUDIES

Transaminase determinations done on the venous blood of 12 dogs prior to thoracotomy ranged from 40 to 75 units. Transaminase determinations on 5 dogs subjected to a complete sham operation, including thoracotomy and dissection but not ligation of the sinus,

showed a postoperative transaminase level in the first 24 hours ranging from 70 to 125 units; but three days after thoracotomy the transaminase level of all dogs was less than 75 units. Transaminase determinations done on venous blood in 7 dogs in group 2, 24 hours after thoracotomy and coronary sinus ligation, ranged from 90 to 125 units. Three days after interruption of the sinus flow, the transaminase levels ranged from 90 to 110 units, and one week afterward those levels ranged from 40 to 95 units.

CORONARY ARTERIAL ANGIOGRAPHY

Urokon introduced through a catheter threaded from the femoral artery to aortic cusps proved quite consistent in evaluating the normal physiologic anatomy of the coronary arterial tree. The interruption of the coronary sinus flow did not affect the recognizable vascular arterial tree. The Cushing brain clips provided good anatomic landmarks. This method proved valuable in subsequent studies of deliberate coronary artery tie-off and will be reported later.

DISCUSSION

As a result of this extensive anatomic and physiologic study, we believe that interruption of the coronary sinus flow employing the technique as described may easily be accomplished in dogs without mortality.

The immediate effect of obstruction to this channel of venous drainage was congestion of the myocardium. This congestion was apparent to gross observation and was reflected in the marked elevation of the sinus pressure to an arterial level. Cyanosis of the myocardium developed and edema of the ventricular myocardium seemed present. The electrocardiogram at this point suggested the presence of a pericarditis. The clearance rate of radioactive isotopes reflected a marked reduction in the speed of drainage of the left ventricular myocardium. However, no apparent muscle damage occurred as determined either by microscopic evaluation or by the transaminase chemical assays. This congestive change in the myocardium, in some as yet unexplained manner, produced a similar congestive change in the vascular bed of the pericardium and mediastinum. It seemed that the vascular bed of the heart muscle and that of the pericardium and mediastinum were in hemodynamic balance.

Progressively during the initial 12 weeks after interruption of the coronary sinus flow, the ventricular myocardial vessel congestion disappeared. One might be tempted to explain this by the development of collateral venous channels. However, Varnolene perfusion studies of controls and of experimental animals demonstrated that many venous and arterial collaterals in the myocardium already existed and that sinus flow interruption appreciably increased the use of these channels. Thus, clearance of this congestive change reflects not merely increased venous drainage but the presence of many arterial and venous collaterals.

With increased use and re-employment of intramyocardial collateral arterial and venous channels, there is, at the same time, increased use of collateral communications between myocardium and the vascular beds of pericardium and mediastinum. Much that relates to the direction of flow in these two beds is not apparent. The pericardium must not be regarded as a thin, avascular structure. Our anatomic perfusion studies convinced us that the pericardium and mediastinum contained myriads of vessels, all capable of marked dilatation and use in amplifying arterial and venous flow to and from the myocardium.

Organization of the congestive process in the ventricular myocardium produced vascular adhesions between ventricular myocardium and pericardium and mediastinal areolar tissues. Twelve weeks after interruption of sinus flow the myocardium was well vascularized and appeared normal. The clearance rate of Na^{24} was normal. The pressure in the divided sinus was normal.

The transaminase levels did not reveal evidence of myocardial damage attributable to this operative procedure. The levels were consistent with the amount of tissue damage attributable merely to a thoracotomy.

Varnolene perfusion studies with slow-motion Kodachrome movies proved to be a valuable method for post-mortem study of the myocardial and mediastinal areolar vascular beds. We employed Varnolene rather than kerosene as did Dock,[22] because Varnolene will readily carry a paint pigment and does not damage the myocardium or the tissues of the blood vessels. These were readily stained for histological study after fixation even though perfused with Varnolene.

Coronary arterial angiography is easily accomplished and proved to be a valuable anatomic and physiologic method for study of the coronary arteries.

SUMMARY

1. Employing the prone position ("Rotisserie") operating table, the dog heart may easily be delivered from the chest through a thoracotomy incision, either on the right or the left. This table afforded good exposure of the heart and particularly of the coronary sinus.

2. The heart of the dog tolerated the operative position of hanging suspended from the major vessels at its base without apparent morbidity or mortality. This cardiac position does not interfere with the inflow and outflow tracts.

3. The coronary sinus flow of dogs may be interrupted without mortality.

4. The coronary sinus division produced: (A) elevation of the coronary sinus pressure to arterial levels for 12 weeks and then gradual return to normal; (B) no change in the pressures of the auricles, ventricles, or aorta; and (C) acute distention of the venous bed, particularly that of the left ventricle, with cyanosis and swelling of the left ventricular myocardium. During the 12 weeks following sinus tie-off, the organization of this ventricular myocardial change produced vascular adhesions between the ventricular myocardium and the pericardium and the areolar tissue of the mediastinum. Collateral venous channels in the myocardium were opened to accept blood dammed by the interruption of coronary sinus flow. Collateral myocardial arterial and arteriovenous channels were opened as a result of high pressure in the venous system of the left side of the heart. These changes persisted at least as long as 16 months.

5. In the normal animal collateral vascular channels exist between the coronary venous system and the peribronchial, peri-vena-caval, peri-esophageal-venous mediastinal systems, and the internal mammary venous system. Interruption of the coronary sinus flow, in an as yet unexplained way, enlarged these recognizable venous collateral pathways.

6. In the normal animal collateral arterial channels exist between the first two descending branches of the right coronary artery and the anterior descending branch of the left coronary artery. Collateral arterial channels exist between the first three descending branches of the left circumflex coronary artery and the anterior descending coronary artery. In a still unexplained way, interruption of the coronary sinus flow enlarges these collateral arterial channels.

7. In the normal animal collateral arterial channels exist between the circumflex coronary artery through atrial wall arterial branches to the mediastinal arterial bed about the pericardium, vena cava, aorta, bronchi, and esophagus. Similar channels exist between the right coronary artery and the mediastinal arterial beds. In an as yet unexplained way, interruption of the coronary sinus flow enlarges these channels. These changes persist and are found as late as 16 months after coronary sinus division.

8. The gray edema that appeared in the left ventricular myocardium after sinus division apparently separated muscle fibers but did not contain sufficient protein to accept eosin in the conventional tissue preparations. After sinus flow interruption, the mediastinal areolar tissue changed to an edematous vascular bed in an as yet unexplained manner.

9. Electrocardiograms taken before and after interruption of sinus flow include a lowered QRS complex and biphasic T waves. These suggest pericarditis. The electrocardiographic changes were not particularly helpful in evaluating these animals.

10. Varnolene (a polycyclic hydrocarbon solvent) perfusions of the heart, lungs, and mediastinal tissue preparations, recorded in 16 mm. slow-motion Kodachrome movies, proved a satisfactory method of studying and recording the effects of coronary sinus division.

11. Transaminase levels of the venous blood in the leg of the dog before and after sinus division showed a rise from control levels to about 100 units. This was felt to be a measure of muscle and tissue damage associated with the thoracotomy wound.

12. Coronary arterial angiography may easily be performed through the femoral artery. This provided a physiologic and anatomic study of the coronary arterial bed.

13. The study of the clearance rate of radioactive sodium (Na^{24}) confirmed the presence of the left ventricular myocardial congestion that was noted after sinus division. These clearance rates returned to normal after 12 weeks, simultaneously with the return of the coronary sinus pressure to normal.

14. Blood vessel counts done on the ven-

tricular muscle sections obtained from the left ventricle wall before and after sinus ligation did not aid in the evaluation of the collateral myocardial change.

CONCLUSIONS

1. Our simplified technique made it possible to divide the coronary sinus of dogs without apparent mortality.

2. The coronary arterial bed is not an end circulation. There are many intramyocardial communications between the branches of the coronary arteries and many communications between the branches of the coronary venous bed. The coronary arterial bed and venous beds are in free communication with the mediastinal arterial and venous beds.

3. Interruption of the coronary sinus flow produced a marked increase in the use of the intramyocardial communications between both segmental arteries of the coronary arterial bed and the coronary venous bed. It is therefore plausible that this procedure would shunt arterial blood from myocardium supported by normal blood supply to myocardial segments deprived of blood as a result of arterial occlusion. Interruption of the coronary sinus flow increased the use of the collaterals between myocardium and mediastinal arterial and venous beds. The inflammatory process that followed the congestion of the left ventricular myocardium produced many vascular adhesions between ventricular myocardium and the mediastinal tissues.

4. Varnolene perfusion studies with slow-motion Kodachrome movies, transaminase blood levels, and coronary arterial angiography are easily done and proved valuable for the study of effects of sinus flow interruption upon the heart and mediastinal tissues. Na^{24} clearance rates may be employed to determine flow efficiency in the myocardium.

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Radiation Nephritis: Report of a Case

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PRIOR TO THE REPORT of 27 cases published by the Christie Hospital and Holt Radium Institute in Manchester, England, in 1953,[1] radiation nephritis was a relatively unknown clinical entity. The kidney generally has been considered a radiation-resistant organ, but this supposition, based on the poor response of kidney tumors to radiation therapy, has been the result of analogy rather than experience. Serious attempts to treat the upper part of the abdomen radically have been undertaken in only a few centers, and, until the advent of supervoltage, it was seldom feasible to attain high dosage levels in the abdomen. Such limiting factors as profound radiation sickness and alarming depression of the white blood count and the platelet count rendered any attempt impractical except in cases where such techniques as the "trunk bridge" were applicable. The trunk bridge technique, as used by Christie Hospital, includes radiation to all of both kidneys, using a dose of at least 2,300 r during a five week period. With the ever-increasing availability of radioactive cobalt (Co^{60}) and supervoltage units, a more radical approach to malignant tumors of the abdomen can be expected. However, unless adequate attention is given to the problem of excluding at least part of the kidneys from high dosage levels, radiation nephritis will occur in some cases.

The purpose of this paper is to report a case of radiation nephritis, which was studied intensively from onset until death, including autopsy findings; to review briefly the literature concerning radiation nephritis; and to stress the importance of obtaining renal function studies prior to and after abdominal radiation therapy, to determine whether the incidence of radiation nephritis can be reduced by careful treatment and planning.

REPORT OF A CASE

A 29 year old white man was admitted to M. D. Anderson Hospital on Nov. 7, 1957, after an orchiectomy for seminoma of the right testis, performed elsewhere in October, 1957. Physical findings on admission revealed normal heart size, blood pressure of 150/80 mm. Hg, and a "huge mass filling the abdomen." Retrograde pyelography revealed marked displacement of both ureters. A soft tissue mass, outlined by the air-filled colon, overlapped both kidney shadows. Intravenous pyelography revealed a nonfunctioning right kidney. Laboratory studies showed normal blood urea nitrogen and urine, a hemoglobin level of 15.5 Gm. per 100 cc., a leukocyte count of 12,500 per cubic millimeter, and a platelet count of 132,000 per cubic millimeter.

Co^{60} irradiation (trunk bridge technique) was given to the entire abdomen. In five weeks the maximum dose to the mid-line was 4,900 r. During therapy, treatment fields were reduced, coinciding with tumor mass reduction. It was hoped that sufficient reduction of the mass would occur prior to attainment of a critical dosage level in the kidneys. (It was impossible to exclude them from the treated area without

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excluding a portion of the tumor mass.) Only after the third week of therapy was there any reduction of the fields. Final dosage to the kidneys was calculated as 3,500 to 4,500 r. Two weeks after treatment of the abdomen, the patient was given prophylactic treatment to the scrotum, left supraclavicular area, and mediastinum. The tumor dose to each region during a two week period was 2,000 to 2,500 r. Although there was a gradual reduction in the blood count in all cellular elements, it was not sufficient to interfere with therapy. During treatment the patient developed severe bilateral thrombophlebitis, which later cleared.

One month after treatment the mass was no longer palpable and the blood pressure was 115/70 mm. Hg. Follow-up intravenous pyelography at one and four months showed restoration of right kidney function and a normal position of both ureters. Roentgenography of the chest in April, 1958, showed no cardiac shadow enlargement (Fig. 1, *Left*).

Evidence of renal damage appeared five months after therapy. Urinalysis disclosed a specific gravity of 1.014, 4+ albumin, 10 to 20 red blood cells and occasional white blood cells per high-power field, and fine granular and hyaline casts. Marked dyspnea on exertion was noted. Blood pressure was 190/90 mm. Hg; hemoglobin level, 8.2 Gm. per 100 cc.; leukocyte count, 5,500 per cubic millimeter; platelet count, 78,000 per cubic millimeter; and blood urea nitrogen, 36 mg. per 100 cc.

Hospitalization was required on July 21, 1958. Physical findings on readmission were: marked wheezes and dullness in both lung bases; blood pressure, 198/110 mm. Hg; pulse rate, 100 per minute; and temperature, 98.6 F. Percussion of the heart showed enlargement; a soft systolic murmur was heard, most loudly in the left axilla; and no thrills were palpable. There was slight distention of the neck veins. Abdominal examination revealed an enlarged nontender liver, 4 to 5 fingerbreadths below the right costal margin; no masses were palpable. Pitting edema of the lower part of the legs was seen, with the right being more edematous. No edema of the upper extremities was noted. The remaining (left) testicle was not tender or enlarged.

An intravenous pyelogram showed nonfunction of the right kidney and poor function of the left. Blood urea clearance was 63 per cent. Hemoglobin level was 6.1 Gm. per 100 cc. On July 23 the patient received 500 cc. of blood, but, at the termination of the transfusion, he developed breathing difficulty. Moist and dry rales were heard in both lung bases. A roentgenogram of the chest showed a greatly enlarged heart (Fig. 1, *Right*). Temperature was 101 F and blood urea nitrogen rose rapidly to 50 mg. per 100 cc. by July 28. No petechiae or purpura were present. Steroid therapy was begun, to treat the thrombocytopenia. The patient was permitted to go home on week ends. During this time the urine protein varied from a trace to 4+. Moon facies developed. On Aug. 14 the red blood cell chromium survival time ($T\frac{1}{2}$ Cr^{51}) was 10.5 days. Red blood cell fragility studies showed complete hemolysis at 0.32 per cent sodium chloride in the patient, compared to 0.30 per cent in the control. Bone marrow aspiration (taken from the sternum in an area of previous radiation) on Aug. 20 showed erythroid hypoplasia. The platelets, averaging 28,000 per cubic millimeter, did not rise after administration of triamcinolone (Aristocort), the dosage of which was slowly decreased beginning Sept. 15. Blood pressure on that day was 160/100 mm. Hg.

On Sept. 28 the patient displayed many purpuric spots on his ankles. Soon petechiae appeared on his arms. The dosage of triamcinolone was increased. On Sept. 30 the patient's temperature was 102 F; he excreted a huge black stool. Hemoglobin level dropped from 8.5 Gm. to 5 Gm. per 100 cc. Serum electrophoresis showed: albumin, 42 per cent; alpha-1-globulin, 7 per cent; alpha-2-globulin,

Fig. 1. Roentgenograms of the chest. (*Left*) On April 15, 1958, showing normal heart. (*Right*) on July 24, 1958, showing marked enlargement of the heart.

15 per cent; beta globulin, 22 per cent; and gamma globulin, 14 per cent. The patient complained of epigastric distress followed by severe right upper quadrant pain. A preliminary diagnosis of peptic ulcer was made. A flat plate film of the abdomen showed air under the right leaf of the diaphragm.

It was considered best to treat the patient conservatively. He responded well to gastric suction and transfusions. Three days later roentgenographic studies demonstrated that the perforation had sealed off, and the patient was given a soft diet. He received methantheline (Banthine) bromide, antibiotics, and hydrocortisone intravenously, triamcinolone therapy having been stopped. The blood pressure was 170/96 mm. Hg, the hemoglobin level was 13 Gm. per 100 cc., and the prothrombin time was reported to be 100 per cent. Three days later the patient again excreted a large black stool and vomited quantities of brown fluid. The hemoglobin level dropped to 6.8 Gm. per 100 cc. During the night he had a massive gastric hemorrhage and went into shock.

An exploratory laparotomy revealed a bleeding perforated ulcer in the second portion of the duodenum. A subtotal gastrectomy and gastroenterostomy were done. The contents of the abdomen and all tissues were quite pale, indicative of a large amount of radiation therapy. The surgeons reported that the stomach itself showed evidence of extensive fibrosis.

The patient had a stormy postoperative course. Hydrocortisone therapy was continued in decreasing dosage. On Oct. 19 he again had severe abdominal pain, and it was felt that another perforation had occurred. The following day he had the first of several convulsions. Free bile drainage was noted on his dressing, but bowel sounds were again active. Four days later the patient vomited bile-containing material and became jaundiced. Levin tube suction was restarted. During the next 24 hours he appeared to be doing well, but at 7:30 p.m. on Oct. 25 he suddenly experienced severe pain and apparently had another perforation. At this time a flat plate of the abdomen showed a very large amount of air under the right leaf of the diaphragm. Because of the poor general condition of the patient it was believed inadvisable to re-explore the abdomen at this time. The patient's condition became worse during the next few hours, and he became comatose and died at 7:55 p.m. on Oct. 27, 1958.

Autopsy Findings. At autopsy it was found that the gastrojejunal anastomosis was unhealed and had undergone dehiscence. The cut edges of the stomach and jejunum were black and necrotic. Turbid, gray fluid filled the peritoneal cavity and fibrinous exu-

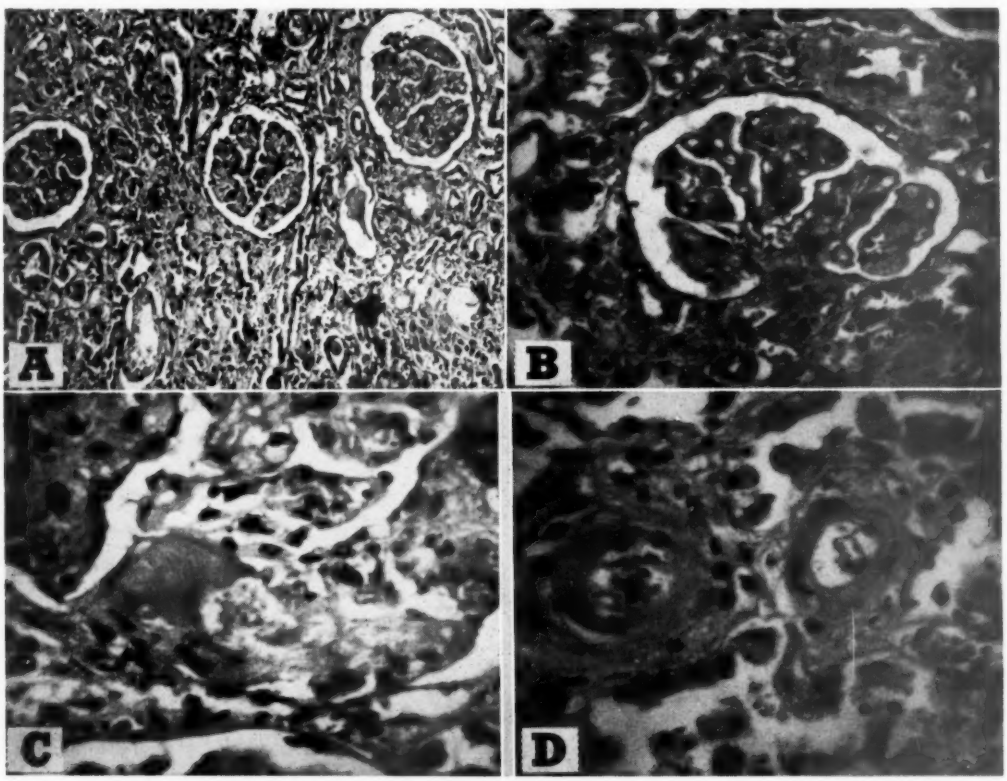

Fig. 2. (*A*) Typical area of kidneys (X67). Note diffuse glomerular lesion, tubular degeneration, cast, and crystalline deposit. (*B*) Glomerulus showing hyaline thickening of capillary (X147). (*C*) Capillary thrombosis in a glomerulus (X289). (*D*) Two small arterioles showing fibrinoid necrosis (X289).

date coated the serous surfaces of the upper part of the abdomen. The lungs and spleen were intensely congested and the liver was fatty. Many petechial hemorrhages were present in the skin, serous membranes, and brain.

The kidneys were about average in size but increased in weight. Their capsules were slightly thickened, smooth, and tense. The parenchyma was pale and distinction between cortices and medullae was largely obscured. Particularly striking was the tough, rubbery consistency of the renal tissue. The adrenals and the perirenal connective tissue were not abnormal.

Microscopic examination of the glomeruli showed, to a greater or lesser degree, subendothelial thickening of capillaries by amorphous, pink-staining material (Fig. 2*A*). In some, thickening was evenly distributed throughout the tuft, forming a twisted hyaline mass in which were imbedded a few endothelial cells (Fig. 2*B*). In other glomeruli thickening was limited to the region near the hili, where local occlusive masses replaced the normal capillary structure (Fig. 2C). Glomerular capsules were uniformly thin and lined by endothelium of normal appearance. Cells of the proximal convoluted tubule were swollen and had granular or vacuolated cytoplasm. Many distal convoluted tubules and collecting tubules contained hyaline or granular casts or yellow-brown crystals. The crystals showed positive reactions when stained with Gomori's methenamine silver and de Galantha's silver nitrate, indicating the presence of uric acid or its salts. The tubular epithelium was focally necrotic and ulcerated, especially at the sites of the crystalline deposits. No significant degree of inflammatory cellular respose was present. Arterioles, generally, and glomerular afferent arterioles, in particular, showed extensive fibrinoid necrosis of their media (Fig. 2*D*). Endothelial cells lining these arterioles were often slightly swollen and occasionally lacking all together, but proliferation was not prominent. The larger vessels were unchanged.

REVIEW OF THE LITERATURE

The literature since 1906 contains only 57 cases of radiation nephritis, some in detail. Warren[2] reviewed all literature pertaining to radiation nephritis available up to 1930 and brought this up to date again in 1942. Grossman[3] did a comprehensive review up to 1954, adding a case of his own. His patient was a 9 month old boy who developed severe renal damage and died after 2,000 r (trunk bridge technique) was given after nephrectomy of the left kidney for a Wilms' tumor. Levitt,[4,5] in 1956 and 1957, reviewed the four types of radiation nephritis as described by Luxton. These he called acute and chronic radiation nephritis and benign and malignant hypertension. He warned that follow-up renal studies should be made of patients who had undergone irradiation of the upper part of the abdomen. In May, 1958, an anonymous British author discussed Professor Wilson's findings of hypertension and interstitial fibrosis of the kidney in rats after irradiation. Cogan and Ritter[6] reported on 3 patients in the same year receiving 1,750, 2,000, and 5,300 r, repectively, to the kidneys for intra-abdominal tumors.

SUMMARY AND CONCLUSIONS

1. A case of acute radiation nephritis developed five months after irradiation of the abdomen, given for metastatic seminoma of the testicle. The patient's anemia was refractory to steroids, which probably helped bring about the unfortunate complication of intestinal perforation.

2. The critical dose level seems to be about 2,500 to 3,000 r in five weeks if both kidneys are entirely irradiated.

3. It is recommended that patients receiving heavy doses of radiation therapy of the kidney-bearing area be studied for evidence of kidney damage prior to treatment and in the follow-up period.

4. An attempt to limit the dose to the kidney-bearing area should be made during the course of radical radiation therapy of the upper part of the abdomen.

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Tuberculosis Control Programs in the Denver Public Schools—1958-1959

Mildred Doster, M.D., and Leland M. Corliss, M.D.

School systems have several kinds of responsibilities in regard to communicable diseases such as tuberculosis. Primarily they should educate all pupils about the importance of the control and eradication of communicable diseases. This can be done by instruction in personal and community hygiene classes and by prevention of the spread of communicable diseases, such as tuberculosis, in the schools among both pupils and adult employees.

PROGRAMS AMONG PUPILS

For nearly 40 years, periodic tuberculin testing of pupils has been done in the Denver public schools. Intradermal tests were done from 1928 until 1951. The rate of positive reactors by 1950 had steadily declined from an average of about 25 per cent to approximately 5 per cent during these three decades. Since 1951, patch tests have been done, except in 1955 and 1956 when Mantoux tests were performed in two high schools. These intradermal tests gave positive reactor rates of 8.7 per cent and 6.5 per cent.

Only 8 known cases of pulmonary tuberculosis have occurred among the school pupils since 1940. The first of these cases involved a high school girl whom the nurse referred for medical care because of persistent and chronic laryngitis; the second a high school girl who failed to respond to long hospitalization for an attack of virus pneumonia; the third a high school girl who applied for afterschool work at a popcorn counter and was given a pre-employment roentgenogram required for food handlers; the fourth a junior high school girl who was suspected of glandular tuberculosis at her initial school medical examination soon after her enrollment; the fifth a senior high school boy whom the school nurse insisted take a roentgenogram of the chest for weight loss and cough even though he was under the care of a private physician; the sixth a 13 year old junior high school boy who, thinking it smart to lie about his age, had a roentgenogram of his chest taken in a neighborhood public health program for those over 15 years of age; and the last two 6 and 8 year old girls who contracted the disease from their families. One of these 2 cases was discovered at the city tuberculosis clinic and the other at the Fitzsimmons Army Hospital clinic when family contacts were having routine recheck roentgenograms.

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During the 1958-1959 school year there were several opportunities to gauge some interesting aspects of the local tuberculosis control programs on the school age group.

Firstly, an evaluation was made of the amount of tuberculin testing being done by private physicians and clinics. Of 3,143 medical cards received from private physicians, 409, or 12 per cent, of the pupils seen were reported to have had skin tests for tuberculosis. These reports were largely on first and fourth grade pupils and did not state the reactions or the types of tests done. The small number of pupils reported to have had tuberculin tests seems to reflect only a moderate level of medical interest in routine skin testing at the present time. However, a tabulation of the health histories filled out by par-

ents for children entering certain schools at kindergarten level, in the upper elementary grades, and at the junior high level showed the following results: Of 2,528 elementary pupils entering 24 representative schools, 36 per cent of the 1,820 kindergarten pupils were reported to have had tuberculin tests, with 15 showing positive reactions; 44 per cent of the 708 older children were reported to have been tested, with 9 showing positive reactions. A similar percentage (46 per cent) of 158 junior high school students in three representative schools was reported to have had tuberculin tests, with only 1 showing a positive reaction.

As can be seen, the parents reported considerably more tuberculin testing than the private physicians did. Although the groups were of different grade levels, one still wonders whether the physicians may have failed to report some of the testing or whether the parents exaggerated the medical attention given their children.

Secondly, tuberculin tests were continued as a part of the health instruction in several secondary schools. The patch test is presently being used because of its high degree of acceptance on a voluntary basis, its ease of application by students and teachers under supervision of the school nurses, and its relative accuracy for teaching purposes.

This is the second year of a special study on Tween-treated Vollmer patches. It was suggested by Dr. Gardner Middlebrook of National Jewish Hospital in Denver that a chemical penetrant or wetting agent might be added to a regular patch test to enhance reactivity and evidence seems to indicate this is true. The chemical presently being used is Tween-80, which was applied in the laboratories at National Jewish Hospital.

During the past school year, a total of 6,006 students were given the patch tests in 11 schools. Of these, 101 (1.7 per cent) gave positive skin reactions. The incidence of positive reactors varied in the 11 schools from 0.8 to 3.8 per cent. Follow-up chest roentgenograms on these 101 students gave entirely negative findings. Upon questioning this group, 28 were found to have had previous known contact with tuberculosis, 21 to have had previous skin tests, and 9 to have had chest examinations by their physicians within the past year.

Among the 6,006 secondary school students tested, 4,500 had both regular Vollmer and Tween-treated Vollmer patch tests. The comparative results of these tests are as follows:

Total tested	4,500	
Total number of positive reactors	84	(1.9%)
Stronger reaction on Tween	48	
Stronger reaction on Vollmer	9	
Positive reaction only on Tween	17	
Positive reaction only on Vollmer	1	
Same degree of reaction on both tests	9	

Follow-up roentgenograms are made available without charge at the city health department tuberculosis clinic to all positive reactors.

The authors believe that the chief purpose for carrying on tuberculin testing programs in our school system is for the educational value—not for case finding. There is increasing evidence that the rate of positive reactors is steadily decreasing among those tested in schools,[1,2] and there has been a marked decline in deaths from tuberculosis in children less than 15 years of age [3] (less than one tenth of the number who died 20 years ago). In some areas of the country, notably Minnesota, which has had thorough, prolonged testing and control programs, the reactor rate in some communities is now zero. Thus, future routine tuberculosis case-finding programs on school time may be of dubious value.

It is of great importance, however, to continue health instruction [4] in personal and community hygiene units, to give the next generation an intelligent understanding of tuberculosis and other communicable diseases. A tuberculin test is helpful in enlivening classroom sessions, and we believe that it aids the students in learning about the biodynamics of sensitivity, immunization, and general body defenses against disease. Either the Mantoux or the patch test may be used, depending on which serves best the greatest number of pupils in a given school system.

The importance of a strong school program is emphasized in a committee statement [5] from the National Tuberculosis Society and the American Association of Health, Physical Education, and Recreation:

> . . . . Schools have a major responsibility for the education of children and youth in health as well as in other fields. Schools have certain responsibilities for health services and supervision . . . . Teaching units relative to problems in the school and community which affect the health of children will be most effective if incorporated within the regular health education curriculum. An integrated approach to school health education is preferable to the organization of special and separate activities for a number of special health problems.

Fortunately, more children are receiving periodic medical supervision, including tuberculin testing. It is the hope of the authors that private physicians and clinics will routinely adopt this procedure so that the role of the schools will be health instruction about tuberculosis with only occasional testing to enhance teaching.

PROGRAMS AMONG ADULT PERSONNEL

It is the belief of many in school health departments that there is a moral obligation as well as legal requirements on the part of school districts to assure a healthy and safe environment for children. If children are compelled to attend schools, then it is reasonable that the schools should and must provide pupils with healthy adult associates (teachers and other employees) as well as safe buildings, grounds, and equipment.

Thus, attention to teacher fitness (both physical and emotional) is an important consideration. Tuberculosis is a real hazard in classroom situations, and great effort is expended in the Denver public schools to make sure that tuberculosis is not spread. The Board of Education requires that large-size (14 in. by 17 in.) roentgenograms be taken of all teachers during pre-employment and pretenure examinations. Smaller roentgenograms (70 mm.), which meet the city health regulations, are acceptable from the other employees. Since 1949 routine chest roentgenograms have been required by city regulation from school employees every three years.

During the 1958-1959 school year there were 887 large roentgenograms taken and about 1,750 small ones, including annual films of 438 lunchroom workers and 57 bus drivers. These 2,637 roentgenograms showed no active tuberculosis, nor has a case been found since 1955 when an active pulmonary lesion was discovered in a primary-grade teacher on the pre-employment examination.

HEALTH INSTRUCTION PROGRAM

Pamphlets, leaflets, and movies from the Denver Tuberculosis Society are used regularly in health and science classes preparatory to the tests. In addition, this past year an 11 page supplemental teaching unit on tuberculosis and tuberculin testing was developed at the request of some teachers whose bright pupils were eager for more scientific information, especially on the biodynamics of the antigen-antibody responses in tuberculin tests. Dr. Roger Mitchell and Dr. James Waring, local phthisiologists at the Webb Memorial Tuberculosis Research Center, Denver, kindly helped us with this material. It has been of assistance to nurses and teachers as well as students.

SUMMARY

Both the philosophy and the program of the Denver Public School Health Services for tuberculosis control have been briefly presented with some data regarding the present low prevalence of tuberculosis among pupils and adult employees.

ADDENDUM

A rather new disease entity has been occurring in Colorado the past year since the writing of this paper. It is swimming pool granuloma, caused by *Mycobacterium balnei*, an organism closely related to the tubercle bacillus. More than 260 cases, mostly in children and youths, have been reported to the Colorado Department of Public Health. Since *Myco. balnei* sensitizes its hosts to tuberculin, all patients with this type of skin lesion give positive reactions to the usual skin tests done for tuberculosis. This fact should be considered in the future when doing tuberculosis case detection or health teaching about tuberculosis.

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Panel on Physician, Patient, and Community Relationships*

Claire F. Ryder, M.D., M.P.H.: Moderator

Euclid M. Smith, M.D.
Reginald Bennett, M.D. } Chronic Illness

Frances Keller Harding, M.D.: The Physician's Role and Quandary

Miss Loyce Bonner: Community Activities

Dr. Ryder: Today our panelists will try to cover the many aspects of physician, patient, and community relationships, and 2 clinical cases will be presented to elucidate the problems inherent in such relationships.

Our first speaker, Dr. Smith, was asked to participate in the panel and to present a patient. He not only agreed to do that but has produced 2 patients and a colleague—Dr. Bennett, an orthopedic surgeon practicing in Hot Springs. Dr. Bennett and Dr. Smith will share the limelight in discussion of the medical and surgical care of these patients. We will hear from the patients a little later.

Dr. Smith: The 2 patients that are to be presented to you today have chronic arthritis, a disease that represents rather well the limitations of one field of medicine and that shows what an orthopedic surgeon and internist together can do for chronically ill patients who are more or less regarded as hopeless and who will remain helpless problems unless something is done for them. In my opinion the problem has partly resulted from lack of good general practitioners taking charge of patients and guiding them from one part of treatment to another. Instead, patients are sent to one specialist after another without any honest guidance by a family physician. A general practitioner usually sees the patients first, but unfortunately many of them run away from chronic cases. Actually they could control and guide these patients better than the specialist could.

The first patient that we should like to discuss is a 30 year old man with chronic rheumatoid arthritis and spondylitis. This individual, ill for 12 years, had tried various remedies before coming to us. He has been under our observation since June, 1959. It is of interest that he has been given many types

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Dr. Smith is Associate Clinical Professor of Medicine, University of Arkansas School of Medicine, Little Rock.

Dr. Bennett practices orthopedic surgery in Hot Springs, Ark.

Dr. Harding, an AMWA Medical Woman of the Year for 1959, practices gynecology in Columbus, and is affiliated with Ohio State University as gynecologist for their student health service.

Miss Bonner is Director, Department of Social Service, University of Arkansas Medical Center, Little Rock.

of physical therapy and various medicaments, including cortisone. He was admitted for orthopedic surgery because in our opinion he was ready for it. The timing in starting an operative procedure in an arthritic patient is very important. That timing can be determined only by one's clinical judgment, with the help of some laboratory tests.

Dr. Bennett will now present the orthopedic aspects of the case.

Dr. Bennett: The history that I elicited from Mr. M. was essentially the same as what the patient told Dr. Smith. I always give my patients a physical examination and take a case history because I consider it a grave error to accept what another physician has said without reviewing these things myself. I believe that there is specialization in therapeutics but not in diagnosis.

Twelve years ago the patient noticed swelling and redness in the metatarsal joints accompanied by pain. Since then he has had continued pain in the feet, lower part of his back, and right hip. He suffered frequent attacks for three or four years mainly in the hip. Night pain has been quite marked and has interefered with his sleep. During the past nine months he has not been able to sleep more than two to three hours at a time even when he took aspirin. The patient has been treated with blood transfusions and at one time was placed in traction, but in such a position that it kept him lying down and sitting up at the same time. For the past year his hip has been in 90 degree flexion with contraction of these muscles and those of one knee. He also had a scoliosis in the lower part of his back and chest expansion of only half an inch.

In considering what to do for a person like this, you have to take into account what the age is, what type of work is done, what deformities are above and below the primary deformity, and what you can accomplish most with the least amount of effort. The patient was ordered to have a hip fusion on the right side, but recently pain in the left hip has also developed. He cannot lie down, sit up, or do anything. I doubt that much will be accomplished because of the scoliosis in his back.

I think that the patient's back was broken when the cast was put on. He was placed in skin traction with approximately 8 lb. above the knee and 5 lb. below to gradually bring the knees down without inducing pain. At the end of a three week period he was able to lie flat on his back in his bed, but he still has noticeable lordosis in his back and a 2 in. shortening in the right lower extremity. This will gradually stretch out. He has been fitted with a long-legged brace because of excessive weakness of the muscles about his knee. We started him on crutches to build up the muscles gradually [*walking demonstration*].

In spite of excessive abdominal muscle weakness and marked lordosis there is improvement in the chest muscles and in chest expansion (2 in.). The patient has just started walking with his knee brace unlocked. Would you like to say anything Mr. M.?

Patient: I take about 10 or 15 steps with the knee brace unlocked.

Dr. Bennett: What do you think about it?

Patient: I think the brace is fine.

Dr. Bennett: How have you been making out?

Patient: I have been doing wonderfully. This is the first time that I have had my right foot on the ground in over a year.

Dr. Bennett: Where are you from?

Patient: Jacksonville, Fla.

Dr. Bennett: Will you tell these doctors how many physicians you had consulted prior to coming here?

Patient: Well, I had been to everyone in Jacksonville, to the Mayo Clinic, and to Campbell's Clinic in Memphis, Tenn. I was very discouraged. It did not seem as if any of them could help, and they all told me that I would never walk again. An operation, a hip fusion, was about all they gave me to look forward to.

Dr. Bennett: Does anyone have any questions to ask?

Patient: It sure does feel wonderful to have that right foot on the ground and to be walking again. I think that I will be able to throw away these crutches. I can almost put full weight on the right leg. I hope to be without crutches in a week or two.

Dr. in audience: May I ask where the physical therapy is done?

Dr. Bennett: At a private hospital by a physical therapist.

Patient: He sure has done wonderfully. The muscle in my right leg was about half as big as the muscle in my left one. Now, in less than three weeks, it is just about as big. The muscles are really coming up there.

Dr. in audience: Do you have pain?

Patient: Very little. All the medicine I take is an occasional aspirin.

Dr. Bennett: He never received any medi-

caments except on the first two days when he came to us. At that time he was given a concentrated solution of hydrocortisone. He never received any narcotics.

Dr. Smith: The next patient we wish to discuss is Mrs. F., who has spent most of her life in the Panama Canal Zone. She has had arthritis for 5 to 10 years. Dr. Bennett will present the case to you. I think you will find it interesting.

Dr. Bennett: Mrs. F. worked in the Panama Canal Zone for many years as a schoolteacher. She has reared a family and is now retired. The object of rehabilitation in this case is to help Mrs. F. become free of pain to the degree where she will be able to care for herself and not be completely dependent upon her family for physical care. Whereas Mr. M., a young man with a family to support, must go back to work (he has not been able to work for a year), Mrs. F. does not need to work but is suffering terribly. Her daughter told me that she could not remember a night in the past year that her mother had not cried herself to sleep with pain.

Mrs. F. had her first bout of rheumatoid arthritis at the age of 30 years. She then had a whole series of treatments, including cortisone therapy for two years and transfusions. She was hospitalized and in bed for two years. She had numerous operations. Her history includes childhood and other diseases and several allergies. In addition, she has had five children.

Mrs. F. has had involvement of all her joints and at the time when I first saw her the hip was causing such pain that she could not sleep. The findings on the right hip were as follows: abduction, 0; adduction, 2+; internal rotation, 0; external rotation, 2+; flexion, 9 degrees; and extension, 160 degrees. I admitted her to the hospital with a diagnosis of hypertensive arteriosclerotic disease, rheumatoid arthritis, hypertrophic arthritis, possible cirrhosis of the liver due to repeated infections sustained in Panama, and thrombophlebitis of the right leg. On April 6, 1959, manipulation and osteotomy were performed. Abduction was 3+, adduction 4+, flexion 70 degrees, extension 180 degrees, internal rotation 3+, and external rotation 3+. She remained in the hospital for about three months. Rehabilitation is taking considerably longer because of all the other disease involvements. I would like you to note the crouched position she is in when she walks and to see the roentgenograms illustrating her condition before and after the osteotomy. Mrs. F. has genu valgum and muscle weakness, which is rapidly improving. Will you walk for us Mrs. F?

Patient: Certainly [*walking demonstration*].

Dr. Bennett: Is your hip bothering you?

Patient: No.

Dr. Bennett: How do you sleep nights?

Patient: I sleep very well. The hip does not bother me, although once in a while my knees do.

Dr. Bennett: Mrs. F. still takes physical therapy. She goes to the Physical Medicine Center about three times a week and has shown continued improvement in her knees and muscles. About two days ago she suddenly developed a great deal of strength and said that a long-legged brace would make her feel much better than walking with crutches. She could be fitted with one, but two braces weigh too much.

Dr. Smith: We have presented these cases not only for their medical interest but to show you that arthritis is a problem for the entire medical profession. When there is no guidance from the family physician patients are pushed from pillar to post—Jacksonville, Fla., to Rochester, and back again. The reason Mr. M. came to Hot Springs is because somebody told him that our "radioactive" water would cure the arthritis. We also see another large group of patients—chronic sufferers from necrotic disease.

Dr. Bennett and I will be glad to discuss any phase of these 2 cases or any phase of chronic rheumatoid arthritis that you might be interested in. From there we can go on to discussion of the sociological aspects of disease. While we take pride in our medical knowledge we also take pride in the very high level of medical care that our people obtain; still, there is something lacking. Maybe you all have the answer.

Dr. Ryder: Thank you very much Dr. Smith and Dr. Bennett, especially for bringing the 2 patients here. I think that discussion of their cases has given us a very nice springboard. You have not just pointed a finger at us but have asked us to do something. I hope that the rest of the panel will be able to bring forth some of the ideas and examples of community programs that might avoid or prevent such happenings as lack of guidance for a chronically ill patient in his own community.

In the essay on the history of public health in "Centaur" [*p. 358*] by Dr. Félix Martí-Ibañez, one phrase stands out as an example of what we are trying to say today: "The most important aspect of modern medicine is unquestionably that of Public Health, embracing as it does the four fundamental historical functions of a physician: to heal, to know, to predict, to organize. Even further, Medicine has been gradually changing from a personal relationship between physician and patient to a relationship between the physician as counselor and his community. From the *Techne Iatrike* of the Golden Age of Greece and the *Ars medendi* of Imperial Rome, Medicine has evolved into the Preventive Medicine–ultimate goal of Public Health–of today, which anticipates the Medicine of Tomorrow." If we remember that we are referring in this instance not to public health in an official agency context but rather to the role of every physician as a public health physician, it will be understood that the complexities of medicine today require that physicians no longer retain only a face-to-face relationship with patients but also the responsibility for community services. I hope that the union of these two roles will be brought together in the discussion.

Dr. Harding is going to present the responsibilities of the physician and Miss Bonner is going to talk about the community and its responsibility to patients. You will see that the focal point in each case is the patient. I think the 2 patients we have seen illustrate that rehabilitation, which includes medical care, is based on what is left to the individual –not what has happened to him–and what we have to work with in determining the goals in a realistic fashion. In the case of the young man that we have seen today, the goal is one of employment; therefore, there must be something in the community that will permit this individual to go back to work. In the case of the older person, the goal is self-care; therefore, it must be determined what community programs and services will permit this individual to stay as independent as possible for as long as possible. All this fine work would go down the drain if the patients were to return to their communities and nothing was available there to continue what has been done here.

With that, I would like to ask Dr. Harding what she sees as the role of the physician today and what the physician's dilemma is in terms of trying to find time to do all the things that have to be done, keeping in mind the broad total care of the patient. Dr. Harding is past president of the Metropolitan Health Council, on the budget committee of the Columbus, Ohio, Community Chest, adviser to many community groups, practicing physician, mother of three, and grandmother.

Dr. Harding: I imagine that most of you have been reading the articles in *Life* on the subject of medical care of the hospitalized patient. Maybe you turn to the front of the magazine as I do, to read the remarks that come from individuals all over the country. Several weeks ago there appeared the following statement from a pharmacist after he had read one of these articles: "Over the past 35 years, I have observed the physician-patient relationship of several thousand people. There is no doubt that when this relationship is measured by the satisfaction of the patient, the physicians who have been most successful have been those who recognized the fact that medicine is both an art and a science and who, in so doing, treated the whole patient." That is the end of the quote but I would like to add "and family," since we have to consider the patient in the context of the family.

I am going to assume in talking to you about disability that all of you know and use all the modern methods of diagnosis, treatment, and rehabilitation. I am also going to use the term "chronic disability" rather than "chronic illness," since some of these cases do not involve illness.

Chronic disability involves three groups: those born with a disability, those developing a disability later, and the older patient. In each group there is a slightly different approach in management. To mention a few, in the first group are the blind, the deaf, the retarded, the cerebral-palsied, and hemophiliacs. In the second group are those with chronic disabilities or difficulties, which can develop at any age, such as the rheumatic heart, multiple sclerosis, arthritis, and, of course, cancer, which can occur in any age group and which is such a long, drawn-out, and painful process at times that it can be classified in this group. The third group, or that comprised of our older citizens, includes a high incidence of cardiorenal and cerebrovascular disease, senile dementia, and Parkinson's disease.

What do we do about these disabilities? Firstly we diagnose them, and I assume that you are completely and correctly diagnosing

the condition. Then, we help the patient and his family to accept the difficulty. If we do not, he will go from one physician to another and from one city to another. Furthermore, acceptance must precede rehabilitation. Next, we decide about management. Will institutional care or care outside an institution fulfill the patient's needs? Will a rest home or nursing home do? Does the institution, if one is necessary, specialize in caring for chronically ill patients, and do any of its chronically ill patients recuperate?

It is our responsibility to know the answers to these questions and to know what different facilities are available. For example, our health council, composed mainly of physicians, social workers, and others concerned with the problems of sick persons, has been interested in rest homes and nursing homes. Therefore, in 1958 we conducted a survey of these homes to establish standards whereby we would know that individuals who had to be in them would obtain the proper type of care. We should know about planned home facilities such as the Montefiore plan in New York City, possibly one of the best known, where there is intensive home care under the direction of the physician and the hospital. I am sure that you are acquainted with the work of the public health nurse in caring for chronically ill patients. These nurses visit the patients' homes, bathe them, and in general make them comfortable. For patients able to live in their own homes but who cannot get their own meals, "Meals on Wheels" (in Detroit, Philadelphia, Columbus, and other cities), which is operated by volunteer groups, delivers hot meals every day to these individuals, who are under the care of their own private physician.

In deciding what facilities are best or what must be done, you have to consider skills and educational background, especially of children. For example in Ohio, Dr. Pauline Pegg Rossel, an AMWA Medical Woman of the Year for 1954, approached the state legislature several years ago in regard to retarded children. Now, each family with a retarded child is allowed $300 a year for education, and schools for these children are being established. There are good evaluation facilities for children with cerebral palsy, which allow the family to know what to do and what the child is capable of doing. There are summer camps for diabetic children and for the blind and deaf, and I am sure that you know about the special classes for deaf children, established because it was felt that this handicap could not be dealt with in the normal classroom situation without keeping the other children back. For the blind and hard-of-hearing children with normal intelligence, it is believed better to mix them in with other children; however, this has to be worked out with the school and the community. For older persons there are sheltered workshops to evaluate what skills are present or can be developed. In our area the Goodwill Industries plays a big part in developing the skills of disabled persons. They produce enough money through their work to help meet the Industries' budget. Some are employed later by industry. One week a year is set aside as "Employ the Handicapped Week." Newspapers, radio, and television encourage their employment, with good results. If these persons do not utilize such a program, it may be because you as their physicians do not know about such facilities. There are also Golden Age or senior citizens groups. In our health council we developed a group responsible for the problems of older persons, who now have a program with "cracker-barrel" discussion, hobby shows, and suitable recreation.

In all these age groups there are many things to do. As physicians we must realize that we are taxpayers and that our money is going into all these many public agencies, of which there are about 20,000. We ought to know what should be spent, especially since we are not only taxpayers but contributors to the United Community Fund. Furthermore, you may be on the consuming end someday as I am —I have a niece who is retarded, and possibly you have someone like that in your family. We all have parents and we are all getting older, so that we must interest ourselves from the standpoint not only of the physician and taxpayer but also of the consumer.

The point is to know your community facilities and how good they are. If they do not fill required needs, what are you going to do about them? These agencies need medical advisers. They may know how to raise money and, in many instances, how to spend it but they need direction in their medical policies. In our area the Columbus Academy of Medicine, which is our county medical association, appoints a medical adviser to every health agency. Two years ago an inspection team from the county association was in-

vited by the community groups. This team inspected all the medically connected agencies and published a report in the newspapers, which mentioned the agencies and what type of help they gave and also indicated what was needed. This proved a great impetus, medically speaking, in getting the program in the best of shape. I repeat that you need to know your agencies and be willing to help them.

Dr. Ryder: Thank you very much Dr. Harding. I think Dr. Harding has carried us from the individualized patient-physician relationship to the role of the physician as counselor and adviser to the family as well as to the patient. She has shown that physicans have responsibility not only for diagnosis and medical care but also for helping the patient and family accept the disease. She has carried us one step further in discussing community agencies and the fact that the physician must be an adviser to these agencies. I would like to bring out here what I believe might be the role of the official health agency in these matters. The official health department can be either a catalyst or a co-ordinator of functions. I recently saw a report from a community of about 100,000 people in which more than 200 agencies are involved in services to the chronically ill. Each one of these agencies was doing a vital piece of work but in many instances did not know what the others were doing, so that the situation was one of much being done but not much being co-ordinated. In the chronic disease program of the Public Health Service we started with the concept that many services and programs would work more efficiently, with less overlapping and fewer gaps, if there was co-ordinated community care. Unfortunately, when we use the word co-ordination or "co-ordinated care" some agencies with vested interest in their own specific job feel that they would have to give up something; therefore we decided that we ought to find another term. Not long ago the National Health Council published their annual report, titled "Synergism." There was a formula for what synergism meant—"2+2=6, 3+3=9, x+y= infinity." In other words, when agencies work and plan together, the sum of effectiveness is greater than the sum of each individual agency's work. This is a very good title. The health department in some communities has helped in this co-ordination by sponsoring or carrying out a survey or inventory and publishing material on what services are available to the physician. In one community this was sent to every practicing physician; in another it was published by a newspaper. In one community a medical society has itself sponsored the development of a roster of community services. In other words, as Dr. Harding stated, know your agencies. And there is no better way of having this knowledge at your fingertips than to have a roster or inventory of what is available in the community. Another way is to refer your patients to a central referral agency. In some communities central referral and counseling services are available to the physician, patient, and family, who may go for evaluation of the need of the patient and referral to an appropriate agency. However, after referral and counseling there remains the problem of helping the family to accept referral.

Now, I would like to ask Miss Bonner to comment on what has been said. Miss Bonner is director of the Department of Social Services at the University of Arkansas and was formerly associate profesor of social work at the University of Tennessee School of Social Work. She also has been affiliated with the Washington University Medical School and, as she aptly put it, has not only had contact with community relationships but obviously with physician-patient relationships.

Miss Bonner: As a social worker, the problem that bothers me, and this has already been touched on briefly, is how to make the best use of what we have. We have hundreds of voluntary agencies whose direct and indirect services are remarkable. We have impressive resources in the public agencies that have developed in the past 25 years. Our greatest need in accomplishing the goal of prevention, control, and resolution of community-wide social problems is acceleration of the proper use of available resources. If we really want to control and take care of social problems we must do something about overlapping functions of the different agencies and about lack of knowledge of what one agency can do and another cannot do. It amazes me every time I talk to an individual patient to find how much can be done to help him, only then to discover that no agency will say it can do such and such. We are still categorizing too much. For example, how do we divide mental health from health? Where is the dividing line? There have been efforts to rectify these false divisions of functions. One state has a governor's planning

committee made up of heads of organizations in the state and 30 citizens of the state. Another state has used the Public Health Department in co-ordinating all the health and welfare agencies and resources in the community. Quite a few cities have made use of a roving analyzer, that is, a person not attached to any one agency, who studies all of the agencies and helps in planning toward the best way to co-ordinate their programs.

Dr. Ryder: I wonder if there is not something specific that practicing physicians can do, in addition to what Dr. Harding has said, in terms of making use of what is going on and getting into community activities through the advisory role. Miss Bonner, what would you say the physician might do? Is there a problem when one of the physician's patients needs help from a community agency? Do you find a reluctance to shift responsibility to someone else, or is there some way that the physician can share the responsibility rather than relinquishing it?

Miss Bonner: I do not think that the problem involves lack of desire on the physician's part to relinquish patients. Actually there is no problem in this sphere since the physician shares the responsibility. The problem that I see is how the physician views the patient. I have been very pleased to note that medical schools have recently been emphasizing from the freshman year up that the patient is not just a sick person but a whole person who lives in a community, who has a family, and who has feelings. I emphasize this because it is very important in regard to the physician's relationships with other medically oriented personnel and his knowledge of community agencies. For the physician to work well with the community he must be indoctrinated early.

Dr. Ryder: This is a subject near and dear to our hearts. In fact, we had a panel discussion about the training of physicians. We are aware that there is a whole sphere of activities related to illness in which we have to think of socioeconomic problems. I know that this has been a very real problem in terms of the official health department. I was quite discouraged at times, when I was first working in the area of gerontology, to find that the health department would go just so far. They would go as far as chronic illness and some of them would realize that the bulk of chronic illness is primarily in the older age groups, but they have not yet taken that final step in realizing that the problem of chronic illness in the older individual is a minor one in many instances compared to the social and economic problems for which the illness is responsible. So many in the health department feel that the problem is not their business and that another group should attend to it. I think that they are losing a big opportunity to broaden their scope and to see what else can be done. For example, more and more I receive requests from housing authorities, which was not true several years ago, for information regarding older persons. They want to know whether they are responsible in seeing that the older individuals remain well or what they should do when these persons get sick. They wonder what they should have in the way of medical care facilities or services if these persons become ill. So you see that there is a need for looking at all kinds of problems interrelated with illness. Dr. Harding, would you like to comment on this? How do you make it known to these agencies that you are available, and how do you develop an awareness on the part of the agency that it needs help? Did your medical society develop the idea of being medical advisers to every agency in the community, or was there some interest expressed by the agencies? How did the plan start?

Dr. Harding: It started originally with the planning group of the health council, which was composed of eight persons from the Council of Social Agencies (mostly social service workers), eight physicians from the Academy of Medicine and the county medical association, and representatives of the district nurses' and dental associations. The problems that would come to the attention of the executives of the agencies at meetings would be brought before the health council, which was asked for help. Through this group medical advisers would be appointed, and it became the established practice for agencies in the community to ask for medical advisers. For example, the Hearing Society was a group that realized its needs. This society had come to the point where its only members were older persons with hearing difficulties who sat around and played bridge. The society received a small budget from the Community Chest each year to take care of its needs. Since both physicians and social workers felt that a better type of agency was needed, it was told to revamp itself or money would not be forthcoming next year. There-

fore, an advisory group including medical persons was appointed, and they drew up what was believed to be a good program for a hearing society, including help for younger persons, for those with speech difficulties, and for those families with hard-of-hearing children so that they could face the problems their children had. That is one way of holding the pursestrings. Sometimes it is difficult to find physicians who will take on this work, although we do not have this problem in our particular community.

Miss Bonner: Most agencies want this type of help and some charters actually require it.

Dr. Baumann: I would like to know the reasons for the good results in the cases that were presented here. These patients had seen countless other physicians before Dr. Smith and Dr. Bennett succeeded in helping them.

Dr. Ryder: I am not sure that I can answer that question, but the one thing I do know from discussion with Dr. Smith is that neither patient could really name a family physician. They simply went from one specialist to the next. This may be one of the factors. It has also often been said that if you wait long enough all arthritic patients will improve to a greater extent than is thought probable. Maybe these 2 cases represent the natural course of events, helped along by understanding physicians who were on the spot at the right time.

Dr. Dodge: I think that the emphasis placed on specialization these days has led many individuals to go to a specialist rather than to a general practitioner if they believe something specific is wrong with them. If the problem is not in the specialist's field, he will not always take the time to find out what the difficulty is. These individuals then become medical tramps, going from one specialist to another and never finding anybody who will sit down long enough with them to co-ordinate their symptoms. Most of us who are specialists forget that we can practice general medicine and examine the person as a whole, or we do not have time—an extremely important consideration.

Dr. Ryder: I am reminded of a very dramatic occurrence. About a month ago I attended a conference on rehabilitation at which the physician who was speaking on prevention of disability came in with a case record that literally must have weighed 10 lb. The case concerned a patient who had been in the institution for 17 years. During that time no one had anything good to say about him: "The patient is recalcitrant," "The patient is un-co-operative," "The patient does not follow directions," and so on. In 1954 an intern had taken a history and recorded the following note: "The patient is deaf." But it was not until three years later that the patient was fitted with a hearing aid—all because no one had looked at the total patient.

Dr. Brown: I would like to speak in reverse about what Dr. Dodge has said. I believe that part of the trouble in this time of specialization is that patients make their own diagnosis and go to a specialist. General practitioners are expected to make referrals to specialists, but specialists do not seem to recognize that they should make some referrals too. I do not believe the specialist should act as the general practitioner.

Dr. Ryder: When we were running the multiple screening programs in Boston we began to get referrals for general checkups on individuals from dermatologists and psychiatrists. They would say that their patients had been coming to them for a number of years but had not really had complete checkups during the time they came.

Dr. Shanahan: In listening to Dr. Harding discuss the wonderful setup of referrals and community work in Columbus, I was reminded of an incident that recently happened in New Jersey, which should impress us with the importance of keeping our eyes open and actually volunteering where we are not wanted. In the last year our governor set up a program on aging, headed by a nonmedical person. There was no medical person officially involved at all. One of our AMWA branch members, who was a representative to this program from the New Jersey Neuropsychiatric Association, became aware of this situation and told me about it. I was able to arrange several meetings with the director of the program, and there are now definite plans for incorporation of a program under medical guidance.

Dr. Ryder: Right now we are traveling through the country trying to encourage states to set up groups in preparation for the White House Conference. In many states the governor has appointed only lay persons; in some states only the official health agencies are included; and in other states there has been appointment of a broad committee with state officials, voluntary agencies, and welfare agencies included. We try to work through

the state and local health departments and the state medical societies of the AMA in encouraging physicians to volunteer for committee work so that the medical profession may have representation at the state conference level. I think this is something we could all look into. Find out what is going on in your community in preparation for the White House Conference on Aging.

Unless there are some urgent questions I think we should bring this panel to a close. I hope that we have succeeded in covering some of the complexities of providing health and medical care today. These problems add a new dimension to the traditional physician-patient relationship—that of the community. The task of the panel has been to explore this broadened concept and to determine the attitudes of various individuals and agencies concerned. Are resources available in your community, and are these efficiently used in handling today's major health problems?

I wish to thank Dr. Smith, Dr. Bennett, and the 2 patients for being a part of this panel. I also wish to thank Dr. Harding and Miss Bonner for their participation.

Death Rates in 1959

Americans enjoyed favorable health in 1959, as measured by prevailing mortality, and the prospects for continued high standards of national health in 1960 are excellent, the statisticians of the Metropolitan Life Insurance Company report. At the same time, improvement in mortality in the United States during the decade of the 1950's was slight. Considerably greater gains were recorded during the decade of the 1940's and the decade of the 1930's.

The national death rate for 1959 was estimated to be about 9.4 per 1,000 population, or a shade below that for the year before. The 1959 rate was 2 per cent below the rate in 1950 and 2 per cent above the all-time low of 9.2 per 1,000 recorded in 1954. "The limited reduction in the recorded death rate during the 1950's has been due, in part, to the increased numbers in the population of infants and very old persons, the two groups that have the highest mortality. But even if allowance is made for the changing age composition of the population, the relative decrease in mortality during the 1950's has been less than a third that during the 1940's and only about half the reduction during the 1930's."

Although influenza was not epidemic in the United States during 1959, the death rate from pneumonia and influenza was not much below that of the preceding two years, both of which had widespread outbreaks of influenza. In fact, the death rate from pneumonia and influenza fluctuated widely around 31 per 100,000 all during the 1950's without showing any downward trend. This is in marked contrast to the experience during the 1940's when the death rate from these causes was cut in half.

The death rate from diseases of the heart, arteries, and kidneys appeared to be slightly lower in 1959 than in the two prior years, when mortality from these chronic diseases had been adversely affected by the influenza outbreaks. For the decade as a whole, the age-adjusted death rate from diseases of the heart, arteries, and kidneys has changed only little for men but has decreased among women. These diseases now account for somewhat over half the total mortality of each sex.

Cancer mortality was slightly higher in 1959 than in 1958. During the 1950's the age-adjusted death rate from cancer showed contrasting trends for the two sexes—an increase for men and decrease for women. The incidence of poliomyelitis, particularly of the paralytic type, increased sharply. By the end of 1959 there were nearly 8,500 cases of the disease reported in the United States, compared with about 5,800 the year before and with 38,000 in 1954 (before the general use of the Salk vaccine). Mortality from tuberculosis was less than 7 per 100,000 population due to antibiotic therapy and favorable economic conditions, and measles, scarlet fever, whooping cough, and diphtheria caused extremely few deaths, about 0.5 per 100,000. Cases of measles totaled little more than half the number reported the year before.

Report on the Tenth County Medical Societies Civil Defense Conference*

Claire E. Healey, M.D.

SATURDAY SESSION

CIVIL DEFENSE AND THE FEDERAL GOVERNMENT †

Office of Civil and Defense Mobilization (OCDM). About a year ago a National Plan for Civil Defense and Defense Mobilization was promulgated. This plan establishes national nonmilitary courses of action to deter aggression and to provide blueprints of survival in the event of attack. During the past year a series of annexes have been prepared to fill in the details of the National Plan. Annex 18, the National Health Plan, was written with the assistance of the Department of Health, Education, and Welfare. Public Law 606 establishes a civil defense partnership between Federal, state, and local governments and bases the whole program on their joint action, the Federal Government to supply matching funds that Congress has not appropriated.

The speaker stressed the importance of the National Shelter Program and cited six operational programs in its support. These involved the shelter survey program, fall-out shelters in new and existing Federal buildings, and the prototype shelter program in which a sufficient number and variety of shelters will be constructed throughout the country to develop practical information on such varied aspects of shelter construction as costs, site locations, and operation. Finally, a program is under way directed toward the promotion of construction of fall-out shelters.

Annex 18 of the National Health Plan has been reviewed by the AMA and other major health organizations of the country and is ready to go to press. The National Health Plan, along with Annex 30—the National Manpower Plan, Annex 23—the National Radiological Defense Plan, Annex 24—the National Biological and Chemical Warfare Defense Plan, and their relevant annexes, will provide a comprehensive organizational framework, assumptions, assignments of responsibility, and methods of operation for the medical program of nonmilitary defense. The plan is a statement of the principles, responsibilities, requirements, and broad courses of action in the health field.

The report of the AMA on the National Health Plan is an important contribution. The medical profession, speaking through its official organization, has espoused the basic preparedness principle that all health professions and the general public must accept responsibilities and be trained to carry out medical care procedures that they would not dream of encouraging or allowing under normal circumstances. The report states that it is the responsibility of physicians, in respect to preparation for and recovery from a mass attack on the United States, to ensure adequate medical training of the medical and health professions and all other personnel potentially able to assist in the care and treatment of the survivors of a mass attack. Not only allied professions but physicians themselves must be trained to help improve their capabilities in meeting community disaster needs. The private practicing physician may well find himself in the postattack period deprived of the assistance of health officers, sanitary engineers, and other personnel. He must be prepared to assume preventive health responsibilities not normally included in the clinical practice of medicine.

* Dr. Healey attended the Conference in Chicago, Nov. 7-8, 1959, as AMWA representative.

† See page 502 of this issue for a special article on "The National Plan for Civil Defense and Defense Mobilization."

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Examples of functions not normally performed by medical associates, such as dentists, veterinarians, or nurses, are treatment of open chest wounds, treatment of shock, maintenance of patent airways including tracheotomy, administration of anesthetics, assistance in surgical procedures, administration of whole blood and intravenous solutions, and, for nurses, management of normal deliveries.

The report recognizes the responsibility of the medical profession for the training of the ancillary health professions before they can be called upon to assume these expanded roles.

OCDM has established a civil defense emergency hospital program. It has distributed 72 civil defense emergency hospitals for training purposes and 1,252 hospital units packed for long-term storage, to assist state and local governments in the achievement of their planning and preparedness programs.

The importance of this program lies in the fact that it provides the means for state and local organizations to familiarize health personnel with the health unit they would be operating in an emergency. The major emphasis in the Division of Health Mobilization of the U.S.P.H.S. is on training that will equip individuals and communities to meet their own needs with the resources on hand at the time of emergency.

PHS. The PHS is selecting physicians and others on a part-time basis within selected communities to assist in testing training courses that the Service is developing. The PHS is also participating in planning and training efforts to extend the National Laboratory Network and to improve laboratory capacity, to provide standardized diagnostic procedures and rapid detection and identification of chemical and biological warfare agents. It is making grants to medical schools to encourage the inclusion of disaster and military medicine in the curriculum.

By working with each state, the PHS will endeavor to refine emergency plans and develop state-wide operational capability in health mobilization. As a means of realizing these goals within the general population, it is sponsoring a pilot research project in the Boston area. The project has the support and assistance of the AMA.

Veterans Administration. From a material standpoint, the VA affords the greatest unified medical resource in the United States. Its system of 170 hospitals finds representation in every state in the Union except Alaska, Hawaii, and one city in Puerto Rico. The present rated capacity of the hospital system is 123,666 beds. In the event of an emergency, an expansion to exceed 250,000 beds is planned.

The personnel of the Department of Medicine and Surgery exceeds 130,000, skilled and unskilled. Of these, 4,559 are full-time physicians and 2,964 are resident physicians. All fields of specialized practice except pediatrics, obstetrics, and gynecology are represented on these staffs. Approximately 14,000 nurses are employed. All other elements of a modern hospital and clinic teams are included. These teams have been carefully trained in disaster techniques. Careful calculations have been made concerning the theoretical destruction of hospitals and loss of personnel in the event of an attack. The medical program of the VA obviously constitutes a tremendous resource in civil defense.

Military Health and Medical Assistance for Civil Defense. The contributions that military medicine has to make to civil defense and emergency casualty care were underlined. In event of disaster, the primary medical problem for the long haul is preventive medicine. In reality, defense against bacteriological warfare, that is, the warfare we practice on ourselves by transmitting diseases to one another, may well constitute the emergency for which we should be prepared.

The question was asked of how well prepared the average physician is to play his role in this second phase of emergency medical care when he is called upon to be a civil defense surgeon. It was suggested that the art of field medical service as it is practiced in the military constitutes a good source of information for the medical profession.

CONGRESSIONAL REVIEW OF ENVIRONMENTAL AND BIOLOGICAL EFFECTS OF NUCLEAR ATTACK

Congressional public hearings were undertaken concerning the biological and environmental effects of nuclear war. A Congressional committee prepared a hypothetical attack in which thermonuclear weapons of varying size were assumed to have been dropped on specific targets within the United States. The witnesses at the hearing presented testimony concerning effects of this hypothetical attack. Witnesses were selected on the

basis of their competence and experience in the varied fields of nuclear phenomena. The consensus of testimony was that the human race could and would survive the type of hypothetical attack under consideration, notwithstanding the inevitable costs, physical impairments, and deaths.

OPERATION OF A SMALL HOSPITAL DURING CHICAGO SCHOOL DISASTER

On Dec. 1, 1958, there was a disastrous fire in Our Lady of Angels Elementary School in Chicago, and 46 victims were brought to St. Anne's Hospital. The experiences of the disaster team consisting of medical, nursing, and nonprofessional personnel were described, as was the way in which they handled themselves in the face of the tremendous impact of having so many seriously injured patients come to their emergency room in less than 20 minutes. The important facts that came out of the experience were: 1. The program must revolve around one individual or disaster team, or around his previously assigned and trained assistants. 2. The plan must be simple so that all will understand and rapidly learn new changes in the plan. 3. The team approach is essential in any mass casualty situation. 4. Daily staff meetings during the period of disaster are valuable and important as a means of discussing 24 hour treatment routines.

DISASTER EDUCATION IN MEDICAL SCHOOLS

The effectiveness of medical care for disaster victims is as dependent upon proper organization of the effort as upon the skill of the physicians involved. A well-organized program for teaching the principles of disaster medicine has been introduced into 70 of our country's 85 medical schools. Out of this experience has come an appreciation of the ineffectiveness of an educational effort that may never find practical fulfillment because the complementary elements necessary to make it succeed are present neither in the medical school nor in the practicing community. It is suggested that the medical profession take steps to ally itself with the National Guard and to function under the general supervision of the military discipline instituted by this organization in case of disaster. In order to more effectively discharge its professional obligations, effort should be made by the medical profession to establish an appropriate understanding with the proper officials of the National Guard and the state government as to the role that the medical profession will fill in such a situation. This will provide a framework within which the efforts and skills of individual physicans will become effective.

CIVIL DEFENSE FANTASIES AND REALITIES

The luncheon speaker maintained that it is important that the AMA put pressure on the Government to release more information concerning the techniques of biological and pharmacological warfare. He maintained that more is known about the effects of nuclear weapons than about the afore-mentioned type of warfare. He emphasized the lack of activity in this country in relation to the construction of shelters to be used in case of nuclear warfare.

WORKSHOP SESSIONS

The afternoon session was spent in the workshop concerning practical aspects for mobilization and training of medical and health personnel in the care of mass casualties. Medical and ancillary medical professions were represented in this group. Discussions revolved largely around the means of training for ancillary personnel and the difficulties that had been met, and in some instances overcome, during the implementation of various training programs.

SUNDAY SESSION

FIFTEEN MINUTE PAPERS

Training Medical Aides for Civil Defense. The training program of the Academy of Medicine of Cuyahoga County (Cleveland) was described. Its purpose is to train and qualify laymen to become highly useful assistants at the aid station or emergency room level in the event of disaster. The program has met with a considerable amount of success and enthusiasm on the part of the lay participants.

Civil Defense Role of Pharmacists. Members of the American Association of Colleges of Pharmacy have made a formal request that the pharmacists be utilized in the civil defense programs. They can make a major con-

tribution if they are able to utilize their professional ability in: (1) stockpiling medical supplies and dispensing them; (2) developing radiologic defense; (3) educating the public in matters of civil defense, medical preparedness, and public health; and (4) increasing the medical manpower in emergency disasters of local, state, national, or worldwide concern.

Errors in Civil Defense Thinking. The speaker inquired about the reasons for lack of continued and whole-hearted interest in the civil defense program and answered that this oscillation in civil defense enthusiasm may stem from our failure to dent the political armor of patronage often used in dispensing local civil defense positions. He followed with a consideration of what the public has the right to demand of the locally paid civil defense servants.

Collection and Transportation of Casualties and Positioning of Emergency Medical Aide Teams. The functions and requirements of casualty collecting areas in case of disaster should be emphasized in all general educational programs. The frustrating experience resulting from traffic congestion should be brought to the attention of the general public and should be discouraged by penalty if necessary. The problem of the collection and disposition of casualties and the placing of emergency medical aide teams should be given more consideration.

Lessons in Casualty Care Taught by the St. Louis Tornado. This was an informative story of the operation of the St. Louis Disaster Plan at the time of the tornado. Defects were emphasized in order to point up the importance of attention to all operational details prior to the time disaster occurs. This "trial run" brought about a revision in certain areas of the St. Louis Plan.

Are Full-Time Disaster Co-Ordinators Needed in Hospitals? The impression is that full-time disaster co-ordinators are not necessary in hospitals when top management and key staff members are convinced that disaster preparedness is necessary and when they are active in implementing a readiness program. Economic factors in individual hospitals will more often than not preclude the existence of a full time disaster co-ordinator.

What You Should Know About Chemical and Biological Warfare. Problems concerning chemical warfare are more complex now than they were two decades ago. The results from the use of chemical agents fall into two classes: psychological and physical. While not necessarily lethal, they pose the added problem of rapid identification to determine that an attack has actually been initiated and to determine what agent is being used.

Many of the biological agents that we feel might be used in this country are relatively unknown to us in large-scale epidemic form. At times, they are not immediately identifiable. We need improvements in methods of recognizing promptly any abrupt increase in sickness rates. We need to have on hand adequate stockpiles of vaccines and antibiotics with a long shelf life for emergency use.

Generating Community Support for a Medical Defense Program. The whole concept of civil defense is that the civilian population be prepared to care for itself in the event of disaster. This demands that the private citizen have some understanding concerning what he might have to do in event of disaster. A disaster committee of a county medical society is an ideal point of initiation of a program designed to arouse community support of the civil defense program.

Changing Concepts of Disaster Medical Management. By far the major part of our planning in civil defense has been concerned with the effects of thermonuclear attack and the effect of the attack itself upon the population. The question is raised as to whether the entire question of casualty care be relegated to a position of secondary importance and whether our greatest efforts should not be concentrated upon the uninvolved population in order to keep it productive rather than upon restoring the injured to productivity.

Getting Public Acceptance for Civil Defense. It has been hard to sell the concept of civil defense. It will be difficult to sell the plan to the civilian population unless there is complete understanding, co-operation, and mutual respect between the Federal, state, and local governments, which must share equally and completely in their responsibility. It is likewise necessary to have acceptance of the program by professional groups such as the medical profession. Because of their position in the community, they can provide a valuable service in getting public acceptance for civil defense by being sold on the concept themselves. The public must realize that physicians individually and collectively are solidly behind civil defense. This will go a great distance in gaining public support.

Development and Implementation of the Minnesota Civil Defense Plan. The Minnesota Survival Plan is based on the fact that the military will not take over and that the problems on the home front will belong to civil government in case of disaster. The implementation of the civil defense program in Minnesota has been an active process. It was reviewed by the full-time civil defense coordinator, a position which was established in the Minnesota Department of Health.

Disaster Program of Flying Physicians Association. The Flying Physicians Association is only four years old but has a rapidly growing membership of 2,000. It is offering its services and equipment, without charge, to forward the civil defense program. By virtue of the medical training of its members and the mobility by light plane, it feels that it can offer a service to the nation that no other group could possibly duplicate. Here are 2,000 medically trained pilots ready for service on a stand-by basis. It is estimated that it would cost the government more than 60 million dollars for one year to duplicate the setup that the Flying Physicians are offering.

SPECIAL ARTICLE

The National Plan for Civil Defense and Defense Mobilization

Completely packaged emergency hospitals, including everything from bandages to roentgen-ray machines, are part of the medical stockpile now being built up in Federal warehouses across the Nation for use in the event of military attack on the United States. The 1,932 hospitals, each with a 200-bed capacity, may be easily transported and erected in any large public building. Many are now in the hands of state and local governments for training purposes and are made available when needed for use in major natural disasters. In a publication of December, 1958, it was indicated that enough supplies have been collected to treat 5 million people for three weeks. By 1968 it is hoped that medical supplies, supplementing commercial inventories, will be adequate for nationwide treatment for casualties and noncasualties for a year following nuclear attack.

These medical stockpiles are only one element in the complex National Plan developed by the Office of Civil and Defense Mobilization (OCDM) of the Federal Government. This plan "establishes nonmilitary courses of action, and the role of the Federal Government, the states, their political subdivisions, and of individual citizens in the event of an attack to enable the Nation to survive, recover, and win," according to the booklet published by the OCDM, entitled "What You Should Know About the National Plan for Civil Defense and Defense Mobilization." Effective defense of as large a majority as possi-

ble of the U.S. population against the effects of a nuclear blast, the subsequent fire, and environmental contamination is necessary for national survival, recovery, and victory.

The National Plan outlines provisions for pre-emergency, emergency, and postemergency periods, dealing with (1) a two-contingency warning system, (2) evacuation and shelter, (3) control and communications, (4) emergency governmental services, (5) continuity of government, and (6) production and distribution of goods in a recently devastated area. In the event of attack by manned airplanes. the Nation would have a warning period of from zero to three hours, whereas, if attack were by missile, one-half hour at most is the estimated warning period. OCDM officers are on continual duty at the headquarters of the North American Air Defense Command (NORAD), which is responsible for detecting enemy attack. Warning of an impending attack could be broadcast to the Nation within a matter of minutes; if NORAD ordered a radio alert, all regular broadcasting would be silenced and CONELRAD emergency broadcasting, at 640 and 1240 on AM radio dials, would be put into effect. Under the National Plan, two warning signals for municipal sirens have been established: (1) the Alert Signal, a steady three to five minute blast, meaning, "Take action as directed by local government," and (2) the Take Cover Signal, a warbling three minute blast or a series of short blasts, meaning, "Take cover immediately in the best shelter available." In any attack, plotting of the wind and of the location of nuclear bursts will give a general indication as to where to look for dangerous fall-out. Four times daily the Weather Bureau now provides the OCDM and state and local governments with observations of wind directions and velocities at that time.

Survival plans made by states, territories, and metropolitan areas must take into account the estimate that 90 per cent of the individuals who survived any detonation would need protection from radioactive fall-out. Therefore, the National Plan promotes plans calling for construction or improvisation of fall-out shelters. State and community plans must also include programs for moving persons before attack, if this is feasible in terms of shelter and time available, and for moving them after attack to areas of less fall-out.

To provide information and directions in case of emergency, the OCDM is establishing a system of controls and radio communication at safe or reinforced relocation sites. In such a position, the government would immediately take control of resources of food, water, transportation, fuel, and power. At this time backlogs of medical goods and engineering items are being increased through Federal funds and surplus Federal property. The quantity of supplies for medical care and engineering operations stored in a given area is related to the probability of attack on that area—small-capacity warehouses are operated, on a calculated risk basis, in or near principal cities; larger warehouses are located farther from probable target areas; and general reserve or depot types are maintained at a still greater distance from probable targets. Plans of operation and a supply of permanent and voluntary personnel at each supply house will allow efficient unloading and shipment of supplies during an emergency.

Continuity of government is essential to a nation concerned not only with immediate survival but with recovery and victory. Under the National Plan, all governments are required to establish alternate sites or control centers; to establish lines of succession among key personnel; to preserve essential government records; and to make full use of government personnel and resources by installing civil defense functions in their regular services and agencies, to be augmented through the use of trained volunteers. Model legislation has been prepared that would ensure continuity of government even among isolated and devastated communities.

After an enemy attack, the economic recovery of the Nation, so essential to victory, would probably be based to a large extent on government control. Stated generally, the fields involved are: (1) money matters, particularly actions to re-establish a dependable medium of exchange and a credit structure; (2) control of production; (3) control of the distribution of goods and services, to supply the requirements that are most necessary; and (4) control over consumption, so that claimants for available supplies are treated as equitably as possible. The postemergency demand for raw materials, industrial facilities, and trained personnel would necessitate organization of these resources for the most efficient service to the Nation and its people. The OCDM is designing a system of emergency economic control applicable to the Nation as

a whole, yet sufficiently flexible to be administered regionally or within a state, or, for that matter, within whatever restricted geographical areas an attack might create.

"An indefinite future in which attack is not expected but must never be written off" imposes great responsibilities, mainly reciprocal or mutual, on the Federal Government, the community, and the individual.

Federal Government. The Federal Government, through the OCDM, bears the burden of planning, research, training of volunteers and Federal employees, and implementation of plans through education, advice, and use of funds. The National Plan is composed of many operational annexes, such as the National Food Plan, the National Shelter Plan, the National Medical and Health Plan, the Continuity of Government Plan, and the Individual Action Plan. However, all these plans acknowledge the necessity of strong regional, local, and individual planning, and much of the work of the OCDM is in matching state and municipal funds for control centers, promoting investment in shelters against nuclear blasts and fall-out, and equipping the public with knowledge and materials to enable communities to organize effective civil defense operations. This "equipment" includes distribution of the OCDM-issued "Handbook for Emergencies" to more than 40 million families; use of 800,000 radiologic instruments provided by OCDM to state and local governments; and delivery of radiologic kits to 15,000 high schools where, through the cooperation of the Department of Health, Education, and Welfare and the state education departments, science teachers are conducting instruction in the effects of radioactive fallout, measurement, and monitoring.

Under the Plan, the Federal Government is committed to conducting research programs on methods, materials, and facilities to better the nonmilitary defense of this country.

Local Government. The government of a community or municipal area must be prepared for complete temporary isolation from the surrounding region and must organize and train individuals for community service in an emergency. It must make preparation to carry out many of its ordinary functions under extraordinary conditions, and must develop techniques for dealing with the aftereffects of a possible nuclear crisis. It is the program of the local government that the individual must follow during a time of emergency, as preparations for immediate shelter and postattack operations are developed for the metropolitan area unit.

Individual Action. With the individual lies the ultimate responsibility for survival of himself and his family. The program for survival of the individual begins, according to the outline by the National Plan, with preparation of a shelter area with enough supplies for self-sufficiency during the two weeks immediately following an attack. Knowledge of elementary health care and fire control and prevention are essential to survival in a family shelter. Self-education of the individual in techniques necessary to avoid the injurious effects of radiologic, biological, and chemical warfare can be carried out with information available through local civil defense offices.

The individual is also responsible for contributing to the organized community effort. At the present time many phases of the civil defense program require volunteers, in both skilled and unskilled operations. In case of nuclear aggression, persons who have overcome or escaped the effects of the attack should report their availability as manpower to local government authorities.

COMMENT

Civil defense is not a preparation for expected war, nor is it an indication of belief in war as the final method of deciding differences between nations. President Eisenhower defined the U.S. position in the following statement: "It is the clear and unequivocal position of the United States that conflict and disagreement among nations should not be resolved by the use of force. The United States will continue through all available channels to attempt resolution of disagreements by all means that will allow peace with honor. Nevertheless, so long as direct or indirect aggression is used as an instrument of national policy by any nation, common prudence requires that every effort be made to protect the people of the United States by both active and passive means of defense. Civil Defense and Defense Mobilization are vital parts of the Nation's total defense."

(Prepared from the booklet, "What You Should Know About the National Plan for Civil Defense and Defense Mobilization," Office of Civil and Defense Mobilization, Washington, D.C., 1958.)

Medical Briefs

LIVE POLIOVIRUS VACCINE

"The Public Health Service has a considerable interest in the development of live poliovirus vaccine. This interest arises both from its concern with preventive measures and from its legal responsibilities for the licensing of biological products. A continuing review of progress has been made by the PHS committee on live poliovirus vaccine. This review indicates important progress toward the development of a safe and effective poliomyelitis vaccine for oral use. Some important safeguards will need to be developed before there can be full assurance concerning the safety and potency of these products for general use by the physician.

"When the scientists and public health physicians of the United States and other countries have provided evidence of safety and of lack of significant reversion to virulence of the vaccine strains, on the basis of both laboratory and field experience, and when proper manufacturing safeguards have been satisfactorily established by the vaccine manufacturers, the Public Health Service will act on applications for the licensing of live poliovirus vaccine. In the meantime, there should be no abatement of full use of the demonstratedly effective Salk vaccine." (From Burney, L. E.: Current status of live poliovirus vaccine, J.A.M.A. *171*:2180-2181, Dec. 19, 1959.)

PULMONARY, ESOPHAGEAL, AND BREAST CANCERS DESTROYED BY ELECTRON THERAPY

At the forty-fifth annual meeting of the Radiological Society of North America, Dr. Erich M. Uhlmann of Michael Reese Hospital, Chicago, and Dr. Florence Chu of Memorial Center for Cancer and Allied Diseases, New York City, supported the view that electron therapy administered in the advanced stages of cancer will destroy the tumor and yet have few side effects. Both physicians administered a total of 6,000 to 7,000 r, with energies ranging from 20 to 33 mev. None so treated had any deleterious side effects.

Dr. Uhlmann used electron therapy in 17 patients with bronchogenic carcinoma in the advanced stages where, because of age or weakness, surgery and radiotherapy were contraindicated, and in 10 with esophageal neoplasms. As a result of the therapy, 2 patients with bronchogenic carcinoma remained asymptomatic for over a year, 5 for more than six months, and 6 for six months or less. In the 4 who died, the primary tumor had vanished. Of the 10 patients treated for esophageal lesions, 1 has remained asymptomatic for 19 months, 2 for more than 9 months, and 3 for up to 6 months. One patient showed no signs of disease for almost two years before he died of congestive heart failure, 2 died of metastatic lesions, and 1 death was unrelated.

To prevent irradiation of normal tissue, Dr. Uhlmann used lucite shields, designed to fit the individual intrathoracic area.

Dr. Chu employed electron therapy in 19 patients with primary lesions of the breast in whom surgery was contraindicated. Only 1 patient did not benefit from the treatment, 7 had partial regression of the tumor, and in the remaining 11 the tumor regressed completely. In 39 patients with metastatic lesions, 7 did not respond to therapy; however, Dr. Chu had complete success for eight months with 22, and effected partial regression in 10.

SERUM CHOLESTEROL LEVELS STUDIED

Although hypertension and mortality resulting from hypertension are significantly higher among Negroid than white patients, death resulting from coronary artery disease remains about the same in both. These facts have precipitated comparison studies of the serum cholesterol level in both groups. The results of these tests were presented by Dr. Jeremiah Stamler of the Heart Disease Control Program, Chicago Board of Health, in December, 1959, at the thirteenth annual meeting of the American Society for the Study of Arteriosclerosis, in Chicago, Dr. Stamler stated that the serum cholesterol level was definitely found to be lower in Negroid patients. The blood samples were taken from 3,134 middle-aged men and women in the Chicago area: 1,600 Negroes living in the poorer areas of the city and 84 Negroes and 1,450 white employees of a utility company. Serum cholesterol levels in employed Negroes averaged 30 mg. below the level in white employees, and the level among the Negroes who were unemployed was another 10 mg. below that. The tendency of lower serum cholesterol among Negroes is evidenced in all age groups, however.

World Health Organization

WORLD HEALTH DAY

World Health Day, observed each year on April 7, marked the anniversary of the coming into force of the constitution of the World Health Organization in 1948. The theme chosen for 1960 was "Malaria Eradication—a World Challenge," and the object of the World Health Day was to stimulate support for the world malaria eradication campaign in all countries, whether malarious or not.

TRAVELER'S GUIDE TO VACCINATION

Smallpox, cholera, and yellow fever present a far smaller risk to today's traveler than they did even 10 years ago, but vaccination against one or more of them is still required in a number of countries. A recent WHO publication, "Vaccination Certificate Requirements for International Travel," lists the vaccinations necessary or recommended for some 180 countries and territories ranging from Aden to Zanzibar. The 32 page booklet consists of tables showing requirements relating to the three diseases, with symbols indicating whether a vaccination is required for travelers arriving from all countries or only from certain areas. Notes explain specific additional requirements of various countries. WHO also provides a convenient record of vaccinations—the "International Certificate of Inoculation and Vaccinations"—a small yellow booklet that, WHO comments, has become as important to the traveler as his passport. The booklet is based on the International Sanitary Regulations governing land, sea, and air travel around the world, drawn up by WHO in 1952. It's aim is to ensure maximum security against the international spread of disease with minimum interference with world traffic.

NEED FOR NEW WHO BUILDING DISCUSSED

Plans for a new building to house the headquarters of the WHO in Geneva, near the Palais des Nations (headquarters of the UN European Office), were discussed by the WHO Executive Board at its recent session in Geneva. A move to a separate building has become necessary, Dr. M. G. Candau, WHO Director-General, told the Board, because present accommodations in the Palais des Nations are not sufficient for present or future WHO operations, and because the other organizations working in the Palais are also in critical need of additional office space. WHO has already been obliged to move certain of its services to some 80 offices outside the Palais, Dr. Candau said, and plans for enlarging the Palais itself would not provide an acceptable solution. The World Health Assembly approved, at its twenty-fifth session on Feb. 1, the arrangements for the building.

"FIRST REPORT ON THE WORLD HEALTH SITUATION"

The first "really world-wide description of the health of the people" has just been published by the WHO. This 400 page document, entitled "First Report on the World Health Situation," records the progress of man's struggle against his great afflictions and is an assurance to the world in terms of personnel and equipment of the services available to public health administrations in 157 countries and territories.

Dr. M. G. Candau, Director-General of WHO, states in his preface that one of the objectives of the report is "to cast a strong light on various aspects of public health as it is observed in different countries from the standpoint of modern medicine, not as an isolated discipline, but as a living branch of the social and biological sciences." The main part of the report consists of chapters devoted to individual countries, including figures on births, general mortality, and infant and maternal mortality. Information is given on the medical and health personnel employed in national services (number of physicians, nurses, midwives, and dentists) and on hospital services (general, maternity, psychiatric, and sanatoriums.) Each of these chapters is preceded by a brief general summary of the national situation, designed to "set the stage" for the review of the following points in the world health situation: climate and health, ignorance and health, the future, infant mortality, health statistics, shortage of physicians, and international co-operation.

President's Message

"The ontogeny of the individual recapitulates the phylogeny of the race" has been a sentence that I have remembered from my biological training of 40 years ago. Perhaps it was the rhythm of the words that made it remain in my mind, or it may have been a symbol of my fascination with the subject of evolution. I was intrigued by the long history of its development. I marveled that speculation on the subject began before the time of Aristotle and continued among the natural philosophers of the sixteenth and seventeenth centuries (Bacon, Leibnitz, Spinoza, Pascal, and Newton) down to the naturalists of the nineteenth century (Erasmus Darwin, Charles Darwin, Lamarck, and the monk Mendel). The swift winning of acceptance of the theories of Charles Darwin was probably due to the championship of his friend Thomas Henry Huxley. I was never disturbed, as were some college students, by a revulsion from the idea of the evolution of man from lower animals or by a feeling of religious conflict, but I have never been completely satisfied as to "where we go from here." What is the "future of man?"

Julian Huxley, a distinguished biologist and the first Director-General of UNESCO, gives us an entirely new concept of evolution, which appears in the December, 1959, *Bulletin of the Atomic Scientists*. I was interested to note that he is the grandson of Thomas Henry Huxley, the champion of Darwin, and is carrying forward the theory to the modern-day application that I have been seeking.

Huxley suggests that science has launched us into the Atomic Era, with all its attendant hopes and fears, but has also given us a fuller comprehension of nature as a whole. "It is the era in which the evolutionary process, in the person of man, is becoming purposeful and conscious of itself." A few million years ago, living matter had reached the limits of the purely material and physiological achievement and only the possibilities of the mind remained to be realized. This, he stresses, is the psychosocial or human phase of evolution. "Man's capacity for reason and imagination, coupled with his ability to communicate his ideas by means of verbal symbols of language, provided him with a new mechanism for evolution, in the shape of cumulative tradition." Man can transmit experience and its results in place of material particles or genes.

Huxley uses a simile of Sir James Jeans to show us that man as a dominant evolutionary type is absurdly young: "If you represent the biological past by the height of St. John's Cathedral, then the time since the beginning of agriculture and settled life equals one postage stamp flat on its top. And unless man destroys himself by nuclear war or other follies, he can look forward to evolving through at least the time equivalent to another St. Paul's."

Huxley stresses that real progress has already been achieved by psychosocial evolution. We have increased expectation of life, less disease, better communications, increase of mechanical power and decrease of physical drudgery, and enrichment through creative achievement in music and art and in discovery and ideas. But we have also poverty and crime, organized cruelty and indignity, exploitation and slaughter.

With this new perspective, he continues, the better realization of man's intrinsic possibilities

has barely begun. Few human beings realize more than a tiny fraction of their capacities or enjoy any but the most meager degree of possible satisfaction and self-fulfillment. Nor have human societies realized more than a fraction of their capacities.

"The idea of a greater fulfillment for all mankind could become a powerful force, capable of influencing the direction of future evolution, and of overriding the more obvious motives of immediate personal or national self interest. . . . For this we need not only an extension of science, but a reorientation of education; not only more knowledge, but also a better expression and a wider dissemination of ideas."

Jessie Laird Brodie, M.D.

OFFICIAL CALL TO THE 1960 ANNUAL MEETING OF THE American Medical Women's Association, Inc.

I, Jessie Laird Brodie, M.D., as president of the American Medical Women's Association, call all members to attend the 1960 Annual Meeting, to be held in Miami Beach, Fla., June 9-12, 1960, with headquarters at The Carillon Hotel. The Board of Directors Meeting will convene at 8:30 a.m., Friday, June 10 and the first general business session of the Annual Meeting will convene at 9:00 a.m., Friday, June 10, for the hearing of reports, adoption of resolutions, transaction of business, and the presentation of scientific programs.

Every member is welcome to attend. All business is presented for vote by the members.

Jessie Laird Brodie M.D.

American Medical Women's Association, Inc.

TENTATIVE PROGRAM

1960 ANNUAL MEETING

June 9-12, 1960

The Carillon Hotel
68th to 69th Street
Miami Beach, Fla.

Thursday, June 9

Committee Meetings
10:00 a.m.—Executive
1:00 p.m.—Finance
7:00 p.m.—Executive
Others as called by their chairmen
Evening tour of Miami Beach recreational facilities for older people

Friday, June 10

9:00 a.m.—General business session
12:00 noon—All resolutions to Reference Committee A
12:30 p.m.—Luncheon. Compliments of Women's Safety Division, Allstate Insurance Company
2:30 p.m.—Tour of clinical facilities and programs
7:00 p.m.—Dinner
8:30 p.m.—Speaker: Leonard Larson, M.D., Chairman, Board of Trustees of AMA

Saturday, June 11

9:00 a.m.—General business session
11:00 a.m.—Reading of resolutions
12:15 p.m.—Lunch
2:00 p.m.—Scientific Assembly
Debate: "Should the Older Person Live with His Children?"—high school debating team
4:00 p.m.—Hearing on resolutions
6:00 p.m.—Hospitality hour
7:00 p.m.—Inaugural banquet
Inaugural Address: "A Modern Day Challenge—Disability"—Claire F. Ryder, M.D.
Presentation: Elizabeth Blackwell medal

Sunday, June 12

9:00 a.m.—General business session
12:15 p.m.—Luncheon
2:00 p.m.—Scientific Assembly
Preview 1960-1961 program
Panel: "Prevention and Control of Disability"—Nila Kirkpatrick Covalt, M.D., moderator
General presentation, Dr. Covalt
Incontinence, William L. Daniels, M.D.
Psychological, James L. Anderson, M.D.
Health-related, Michael Soisson, LL.D.
Recreation, Jack Woody, Superintendent of Recreation
5:00 p.m.—Tea at Dr. Soisson's Retirement Hotel
6:00 p.m.—Splash party and barbecue at home of Dr. Mary Patras. All women physicians are invited and husbands are welcome

For room reservations, see page 454; meal reservations, page 460; and special tours page 464.

Agreement Between American Women's Hospitals Service, Inc., and the American Medical Women's Association, Inc.

AGREEMENT made this 28 day of January, 1960, between American Medical Women's Association, Inc., hereinafter called Association, having its principal place of business at 1790 Broadway, in the Borough of Manhattan, State of New York, American Women's Hospitals Service, Inc., hereinafter called AWH, a New York Corporation, having its office at 50 West 50th Street, in the Borough of Manhattan, State of New York and Medical Service Committee (American Women's Hospitals) of 50 West 50th Street, in the Borough of Manhattan, State of New York, hereinafter called Medical Service Committee.

WITNESSETH:

WHEREAS, Medical Service Committee (American Women's Hospitals) has been a standing committee of Association and has been such for more than forty years last past, and

WHEREAS, under the Constitution of Association (Article IV, Section 5 and the By-Laws thereof, Article V, Section 10), Medical Service Committee as such was in charge of the relief work of the Association, had the authority to make its own budget, raise its own funds and disburse them and was empowered to receive and administer legacies, and

WHEREAS, functioning under the aforesaid Constitution and By-Laws of Association, Medical Service Committee maintained its own records, administered its own affairs, made its own budgets, raised and disbursed its own funds and received legacies, and

WHEREAS, Association and Medical Service Committee agreed that the interest of each would best be served by the separate legal existence of Medical Service Committee with a measure of liaison between them, and

WHEREAS, Association, at a meeting regularly convened, duly ratified and approved the separate incorporation of Medical Service Committee under the name of "American Women's Hospitals Service, Inc.," and consented to the transfer by said Medical Service Committee of its funds, books, records, office furniture and other paraphernalia to the new corporation, and

WHEREAS, on the 31st day of December, 1959, American Women's Hospitals Service, Inc. was duly organized by the filing of a Certificate of Incorporation with the Secretary of State of the State of New York, and

WHEREAS, the parties hereto are desirous of defining their respective obligations to each other,

NOW, THEREFORE, it is agreed as follows:

1. Medical Service Committee is hereby granted the right to set over, assign and transfer to AWH all funds in its name, together with all books, records, office furniture and such other paraphernalia as it now has and which is and was a part of said Medical Service Committee.

2. AWH agrees for itself, its successors and assigns that all pertinent books and records will be made available to Association, in connection with any audit of the latter's affairs by any taxing authority, wherein the business or activities of Medical Service Committee are involved and AWH further agrees to furnish Association upon written request and provided Association pays for same, copies of any and all of the pertinent records involved in the audit.

3. AWH is authorized to use on its stationery (in type size not exceeding 6 point) the words:—"Successor to Medical Service Committee, American Women's Hospitals of the Amer-

ican Medical Women's Association, Inc." and in other literature, same or other words of similar import.

4. Medical Service Committee represents that none of the funds transferred by it to AWH are trust funds.

5. Association agrees that for a period of five (5) years from the date hereof, not to form a Committee engaged in the same or similar work carried on by Medical Service Committee and/or AWH.

6. At the time of transfer of its assets by Medical Service Committee to AWH, Medical Service Committee agrees to submit a final audit of its assets and liabilities to Association, as provided in the By-Laws and Constitution of Association.

7. In consideration of the foregoing, AWH agrees at all times hereafter to indemnify Association against any loss, damage or expenses which Association may sustain or incur by reason of any act, thing or deed committed or performed by Medical Service Committee from the time of its formation to the date of the transfer of its assets to AWH.

8. Subject to ratification by the respective Board of Directors of Association and AWH, the By-Laws of both corporations shall provide that a member of the Association shall be a member of the Board of Directors of AWH with the end in view that liaison shall continue between Association and AWH.

9. Association agrees that it will cooperate in securing to AWH any legacies which by their terms are bequeathed to American Women's Hospitals or Medical Service Committee, or intended to be bequeathed to American Women's Hospitals or Medical Service Committee.

IN WITNESS WHEREOF, the parties have hereunto set their hands the day and year first written above.

AMERICAN MEDICAL WOMEN'S ASSOCIATION, INC.

(Signed) By: Jessie L. Brodie, M.D.
President

AMERICAN WOMEN'S HOSPITALS SERVICE, INC.

(Signed) By: Esther P. Lovejoy
President

Council Meeting of Medical Women's International Association

Baden-Baden, Germany *Sept. 7-10, 1960*

The subject of the conference at the ninth meeting of the MWIA will be "The Old Woman," and each of the affiliated organizations will participate in the discussions. The German Medical Women's Association is putting a great effort into the organization of this meeting to make it both enjoyable and interesting. The Executive Committee has made the following plans for the Scientific Session: On the first and second days there will be presentation of special papers and brief comments. On the third day Council members will break up into six working groups for group discussions. This will be followed right to the end of the session by a general report and summary. The following divisions for the working group have been suggested: (1) the situation of old women in society and in the family; (2) the working situation of the old woman and pensionable age; (3) physical illness (two working groups will discuss this topic); (4) mental disturbances; and (5) measures of care for the old woman.

The AMWA is allowed five councilors and 25 nonvoting delegates and observers. All anticipating attendance at the MWIA meeting are requested to send their names to the undersigned as early as possible. Registration blanks, including requests for hotel accommodations, will be sent to those requesting them. For further information write to Alma Dea Morani, M.D., National Corresponding Secretary, 3665 Midvale Ave., Philadelphia 29.

FOURTH MEDICAL WOMEN'S INTERNATIONAL TOUR—1960

The following tour has been arranged in connection with the MWIA Council Meeting, to be held in Baden-Baden, Germany, Sept. 7-10, 1960, and the World Medical Assembly in Berlin, Sept. 16-22, 1960.

Leaving New York Aug. 5 by Pan American World Airways jet #114, we will spend five days in Rome, with two full days of sight-seeing, two days of leisure (one of which may be used for a visit to Naples and Pompeii—optional), and an evening to see the performance of the Open Air Opera at the Baths of Caracalla. From there we fly to Athens by Italian Airlines on Aug. 11 for seven days, with trips to Corinth, Epidaurus, Mycenae, Thebes, and Delphi. On one afternoon there will be a trip to Cape Sounion along the Coast of Attica, passing quaint Greek villages, and a visit to the Temple of Poseidon with dinner at the Pavilion, perched on a cliff below the Temple.

A cruise along the Dalmatian Coast will begin on Aug. 17, leaving Athens by ship from Piraeus, sailing for four days and nights, and stopping at several ports of call—Bari, Kotor, and the historic walled town of Dubrovnik, where we will have dinner and attend the Dubrovnik Festival of Music and Folklore. Continuing our cruise to Rijeka, we disembark for an overnight stay at the famous Adriatic seaside resort Opatija. The following morning we leave in our own motor coach for a beautiful drive through the National Park and Plivice Lakes to Zagreb for a day and night visit; then on to Ljubljana, the old capital of Slovenia and site of many cultural and archeological monuments. On Aug. 25 we arrive in Trieste.

From Trieste we drive to Venice for two full days of leisure and sight-seeing, leaving on Aug. 29 by private motor coach for Bad Gastein, world famous spa, and, via Salzburg, for two days in Oberammergau, during which we will attend the Passion Play. Munich will be the next stop, with ample time allowed for the opera and sight-seeing. On Sept. 6 we leave for Baden-Baden and the MWIA meeting.

Reservations for the MWIA meeting will be made through the MWIA Secretariat, but our travel agency will take care of return reservations to New York and stopovers in Berlin, Paris, and other cities as desired. Husbands and friends are welcome.

The cost of the tour is $1,495. For further information and a detailed itinerary, write Ada Chree Reid, M.D., 118 Riverside Drive, New York City 24.

Objectives

"The purpose of this Alliance is to bring medical women of North, South, and Central America, and the Caribbean Area into an association with each other for mutual improvement; encouragement of their participation in all branches of medical public welfare work; for exchange of ideas and of improved treatment methods; to facilitate social and cooperative relations; to assist in the further education of its members through exchange fellowships and loans; and to generally forward such constructive movements as may be mutually beneficial and properly endorsed by the medical associations of our several countries." (Constitution—Article II)

Pan American Medical Women's Alliance

VII CONGRESS—SAN JUAN, PUERTO RICO

June 3-8, 1960

Have you dreamed of a medical meeting on a tropical island cooled by trade winds? Does your dream include five days at the beautiful modern Condado Hotel, with the architecture and the charm of old Spain, which is situated on an enticing ocean beach? Oh, yes, there is also a large outdoor swimming pool if you are timid. And all is at amazingly low off-season, convention prices.

Our Puerto Rican colleagues promise hospitality of the incomparable Latin-American type at this crossroads of North and South America—the strongest link in our friendship with our Spanish-speaking colleagues. Their entertainment plans include a Sunday excursion to Barranquitas, a famous mountain resort, and a trip to the eastern end of the Island to the mountain "El Yunque," with its "Rain Forest" of prehistoric species of tree ferns. Then to Luquillo beach for a swim and barbecue. The world-famous Casals' Music Festival will also take place during the week of our congress. Would you not like to attend one of their concerts?

The medical program will be outstanding as it brings together research and observations from both continents, and with adequate translations. The economy fares make it possible to fly from New York to Puerto Rico and return via Miami for little more than the round trip to Miami alone. PAMWA, AMWA, and AMA—14 days of medical refresher courses and delightful entertainment too!

For registration blank, see page 466 of this issue.

Of Special Interest

MOTOR VEHICLE ACCIDENTS

Motor vehicle accidents killed more persons in the United States in the first six months of 1959 than did acute poliomyelitis, measles, scarlet fever, whooping cough, and diphtheria, all lumped together, in the last six years, according to statisticians of the Metropolitan Life Insurance Company. The motor vehicle accident toll of approximately 17,100 was about 5 per cent above that for the first six months of 1958 and marked a reverse in the trend of the last few years. Beginning with the January-June period of 1956, when about 18,000 were killed, traffic deaths for the period had dropped to 17,500 in 1957 and to about 16,300 in 1958.

Records of the circumstances surrounding motor vehicle accident deaths in 1957 indicate that intensified efforts toward greater highway safety are needed. Collisions between motor vehicles resulted in almost 12,000 deaths that year; they accounted for over one fourth of all motor vehicle accident deaths among men and for about two fifths of those among women. Pedestrians hit by motor vehicles comprised one fifth of the total victims, the number of such deaths totaling close to 8,000. Other collision victims included nearly 2,000 drivers and passengers in motor vehicles that hit fixed objects, such as trees and poles, and another 1,400 dead were in vehicles that collided with railway trains. Noncollision accidents also account for a considerable loss of life in the United States. In 1957 more than 7,500 motor vehicle deaths resulted from running off the roadway, and another 1,300 persons died in vehicles that overturned on the road.

"The complexity of the motor vehicle problem requires an attack on many fronts. Law enforcement agencies, engineers, educators, and others actively engaged in the safety movement still face a formidable task in reducing the slaughter on our streets and highways. But these efforts will accomplish little if they do not have the wholehearted co-operation of the American people."

BABY CARE COUNCIL

The National Baby Care Council, a voluntary public service organization located in Philadelphia, has been formed to promote the health and welfare of the baby from birth to 2 years of age. The Council is financed by the diaper service industry and operates as a nonprofit corporation with its own constitution and bylaws; it has complete independence in determining policy and program. Professional membership in the Council comes from nine fields representing medicine, public health, nursing, education, social service, community organizations, hospitals, research, and communications.

Two major projects are currently under way. One is the distribution of a booklet, "Mother's Guide to Diaper Hygiene," which was prepared to help mothers prevent diaper rash. The second project is a baby-sitter training course, first developed in Pittsburgh in co-operation with the Allegheny County Schools, to train teen-agers in the care of babies. The course includes an instruction film, a baby sitter's handbook, and a teacher training manual.

INTERNATIONAL MEETING EMPHASIZES COMMON GOALS OF WOMEN

The governing body of the International Labor Organization established the Panel of Consultants on the Problems of Women Workers, which met in Geneva, Switzerland, in 1959. The Panel included 27 members from 19 countries, 9 each appointed from industry, labor, and government. Five women who had studied the work of the Women's Bureau of the U.S. Department of Labor participated in the meeting, at which Mrs. Alice K. Leopold served as chairman.

Of particular interest to the Panel were: recent trends in women workers' opportunities and needs, conditions and problems of women working in agriculture, women's wages, and future programs for women workers. Mrs. Leopold said: "Everywhere women leaders are approaching their task with dedication and competence. They are determined and able to meet the challenges offered by new developments which are occurring in all parts of the world."

Opportunities for Women in Medicine

AWARDS

Monographs. In an effort to encourage young physicians to communicate their work in the classical form of the monograph and to achieve high standards of medical writing, the editors of Modern Medical Monographs have announced the 1960 competition for unpublished manuscripts on clinical subjects in the field of internal medicine. The first prize is $500, and the authors of other highly rated manuscripts will be offered a contract for publication of their work as a book in the MMM series under standard royalty arrangements. The conditions for eligibility are: the physician is to be under 40 years of age; manuscripts, including illustrations, should be submitted in duplicate (original and one copy) by registered mail and postmarked by Dec. 1, 1960; the manuscript, including bibliography, must not be less than 130, or more than 200, double-spaced typewritten pages with 1 in. margins, and should not have more than 30 illustrations (pictorial charts, drawings, diagrams, or photographs); and Fishbein's Medical Writing (third edition) should be followed for style. Send manuscripts to Irving S. Wright, M.D., 450 E. 69th St., New York City 21.

Psoriasis. The Baylor University College of Medicine has announced the Mr. and Mrs. J. M. Taub International Memorial Award for Psoriasis Research in the amount of $1,000. An individual or group will receive the award for the "most outstanding investigative work" in this area. The research must have been published in one of the medical journals during the year, or read before a dermatological medical society. Application must be made by Dec. 31 of the same year and submitted to Dr. John M. Knox, Department of Dermatology at Baylor, Houston 25, Texas.

FELLOWSHIPS

Industrial Medicine. Graduate fellowships in industrial medicine are being offered by the University of Cincinnati Institute of Industrial Health. Information may be obtained from the Secretary, Institute of Industrial Health, College of Medicine, Eden and Bethesda avenues, Cincinnati 19. Only graduates of approved medical schools who have completed at least one year of internship will be considered.

Professional Women. The Fellowships Awards Committee of the American Association of University Women will award $108,500 in fellowships for the year 1961-1962. The 40 fellowships, which the sum will provide, will be open to women of the United States who have either their Ph.D. degree or who will have fulfilled all requirements for this advanced degree except the dissertation, and to women who have achieved professional recognition. There is no restriction by age or field, and the fellowship may be used for research or study abroad or in the United States. The deadline for filing applications is Dec. 1, 1960. For information write to Fellowships Office, AAUW Educational Foundation, 1634 Eye Street, N.W., Washington 6, D.C.

LOANS

Merck. The George W. Merck Memorial Loan Fund in the amount of $400,000 has been established by the Merck Company. The purpose of the fund is to encourage deserving interns and residents to seek the best possible postgraduate training by providing loan funds that will supplement the stipends available to them at teaching hospitals. Eighteen medical schools affiliated with the following universities are participating: Boston, Columbia, Cornell, Harvard, Johns Hopkins, New York, Northwestern, St. Louis, Tufts, California, Chicago, Illinois, Pennsylvania, Vermont, Virginia, Vanderbilt, Washington (St. Louis), and Yale. Each loan shall be repaid to the participating medical school that makes the award. Graduates of other schools are eligible if they take their internship or residency at one of the 48 associated hospitals. Contact the Merck Company Foundation, Rahway, N.J., for further information.

MEETINGS

Alcoholism. The International Commission on Alcoholism in Industry, in conjunction with the Conference of French Industrial Enterprises on Safety at Work and Alcoholism, will meet in Paris for its first session June 8-10. For information contact Mr. André Bertrand, 24, Raspail, Paris VIIe, France.

Biopsychiatry. The Society of Biological Psychiatry will hold its meeting June 10-12 at the Deauville Hotel, Miami Beach, Fla. Interested persons should contact Dr. George N. Thompson, 2010 Wilshire Blvd., Los Angeles 57.

Cancer. The Fourth National Cancer Conference will be held in Minneapolis Sept. 13-15. The theme of the Conference will be "Changing Concepts Concerning Cancer." For information write to the American Cancer Society, Inc., Medical Affairs Department, 521 W. 57th St., New York City 19.

Chest Diseases. The International Congress on Diseases of the Chest will meet in Vienna, Austria, Aug. 28-Sept. 1. The meeting is sponsored by the Council on International Affairs, American College of Chest Physicians. Information can be obtained by writing to Mr. Murray Kornfeld, 112 E. Chestnut St., Chicago 11.

Congenital Malformations. The International Conference on Congenital Malformations will be held in London, England, July 18-22, under the sponsorship of The National Foundation. The Conference will deal particularly with the incidence of congenital malformations and its relationship to social and medical conditions, the genetic and environmental factors that may be responsible, the normal mechanisms of embryogenesis and the conditions that result in abnormalities, the relationships between mother and fetus during pregnancy, and the obstetric problems related to deformity. Information may be obtained from Mr. Stanley E. Henwood, Executive Secretary, International Medical Congress, Ltd., 120 Broadway, New York City.

Dermatology. The Society for Investigative Dermatology, Inc., will convene at the di Lido Hotel, Miami Beach, Fla., June 13-15. Further information can be obtained from Dr. Herman Beerman, 255 S. 17th St., Philadelphia 3.

Diabetes. The American Diabetes Association, Inc., will meet at Miami Beach, Fla., June 11-12. For details contact Mr. J. Richard Connelly, 1 E. 45th St., New York City 17.

EEG. The American Electroencephalographic Society will meet June 10-12 at the Statler Hilton Hotel in Boston. Information can be obtained from Dr. George A. Ulett, 1420 Grattan St., St. Louis 4.

Electron Microscopy. The European Conference on Electron Miscroscopy will meet Aug. 29-Sept. 3 at Delft, The Netherlands. For details write to Prof. J. B. LaPoole, Mijnbouwplein 11, Delft, The Netherlands.

Endocrinology. The Endocrine Society will meet at the Eden Roc Hotel, Miami Beach, Fla., June 9-11. For details contact Dr. Henry H. Turner, 1200 N. Walker, Oklahoma City, Okla.

Geriatrics. Miami Beach, Fla., will be the site of the meeting of the American Geriatrics Society June 9-10. Information can be obtained by writing to Dr. Richard J. Kraemer, 2907 Post Rd., Warwick, R.I.

Medical Writing. The Third Annual Medical Writers' Institute will be held at Rensselaer Polytechnic Institute, Troy, N. Y., June 13-17. The Institute was founded in 1953 to provide a forum and workshop for writers and editors. Inquiries should be sent to Prof. Jay R. Gould, Director, Technical Writers' Institute, Troy, N. Y.

Medicine. The German Medical Association (Bundesärztekammer) will be the host of the XIVth General Assembly of The World Medical Association Sept. 15-22, and will hold its annual meeting concurrently. The two associations will meet jointly in their opening and closing plenary sessions. Information can be obtained from The World Medical Association, 10 Columbus Circle, New York City 19.

Mental Deficiency. The International Conference on the Scientific Study of Mental Deficiency will meet in London, England, July 24-29. For details contact Mr. Harvey A. Stevens, 301 Troy Drive, Madison 4, Wis.

Neurology. The American Neurological Association will meet at Boston's Hotel Statler June 13-15. Further information can be obtained from Dr. Melvin D. Yahr, 710 W. 168th St., New York City 32.

New York Infirmary Alumnae. The Medical Alumnae Association of the New York Infirmary will hold its annual meeting on June 7. The chairman will be Dr. Helen

Grady Cole. Topics and speakers will be: "Copper Content in Blood Plasma of Schizophrenic and Normal Children," Dr. Ruth Bakwin; "Recent Advances in Ear, Nose, and Throat," Dr. Mary Markham; "Psycho-Pharmacology," Dr. Helen Langner; "Newer Approaches in Chemotherapy in Malignancy," Drs. Erlinda Novales and Barbara Johnston; "What's New in Allergies," Dr. Leoni Claman; "Recent Advances in Neurology," Dr. Luigia Norsa; "Results of 20 Cases with Modified Shirodkar Procedure," Dr. Helen Spencer; "Advances in Cardiology," Dr. Frances Bailen-Rose; "Recent Advances in Fertility," Dr. Jeanne Epstein; and "New Frontiers in Medicine," Dr. Lucile Loseke. For information write to the Association, New York Infirmary, Stuyvesant Square East and 15th Street, New York City 3.

Nuclear Medicine. Persons interested in attending the meeting of the Society of Nuclear Medicine June 22-25 at Estes Park, Colo., should contact Dr. Thad P. Sears, VA Hospital, Denver 20.

Occupational Health. New York City will be the meeting place of the 13th International Congress on Occupational Health July 25-29. Forty countries, represented by physicians, nurses, and industrial hygienists, will consider the problems of administration, medical and surgical practices, education, training, work physiology, work psychology, the influence of the environment on health and hygiene, hazards peculiar to certain industries, and social and legal problems. For details contact Dr. Leo Wade, 15 W. 51st St., New York City.

Ophthalmology. The Association for Research in Ophthalmology, Inc., will hold its meeting June 12-17 at Miami, Fla. Information can be obtained from Dr. Lorand V. Johnson, 10515 Carnegie Ave., Cleveland 6.

Physical Therapy. Details on the meeting of the American Physical Therapy Association in Pittsburgh, June 26-July 2, can be obtained from Miss Lucy Blair, 1790 Broadway, New York City 19.

Tuberculosis. Bahia, Brazil, will be the site of the twelfth Pan American Tuberculosis Congress. The meeting will take place July 10-14 and information can be obtained from Prof. Fernando D. Gomez, 26 de Marzo, 1065, Montevideo, Uruguay.

THESE WERE THE FIRST

FRANCISCO, wife of Matteo de Romana, received a public certificate in 1321 from the University of Salerno, stating that she possessed knowledge of surgery and had passed the examination before a commission of diseases and surgery.

DR. WINNIE M. SANGER, born in 1871 in Jefferson, Ill., came to Oklahoma City in 1904 as the city's first woman physician. Dr. Sanger attended medical school at Washburn College, part of Kansas State College, and received her medical degree in 1904. She was the last living person for whom a dormitory at the University of Oklahoma was named and was one of the first chosen for Oklahoma's Hall of Fame. Dr. Sanger was the first delegate from Oklahoma to the International Council of Women, of which she was a life member.

DR. KATHERINE L. STORM, of the 1892 class of the Woman's Medical College of Pennsylvania, died at the age of 81 years at Perkasie, Pa. She had operated a fruit farm at East Rockhill Township near Perkasie, and had developed an abdominal support that bore her name and was used here and abroad. Dr. Storm retired in 1912.

DR. HANNAH TYLER WILCOX, born in 1838 in Boonville, N.Y., graduated in medicine from the Pennsylvania Female College, near Philadelphia, in 1860. She then traveled by stagecoach to southern Missouri, where she built a successful school. With her husband, Dr. M. W. Wilcox of Rochester, N.Y., she practiced in Warrenburg, Mo. She served 10 years with the Order of Chosen Friends and was one of the early advocates of dress and health reform.

In 1906 the WOMEN'S ACADEMY OF MEDICINE was organized in Detroit by women physicians, the first of its kind in Michigan.

—From the ELIZABETH BASS Collection, Rudolph Matas Medical Library, Tulane University, New Orleans.

News of Women in Medicine

Dr. Rita S. Finkler of Newark, N. J., presented "Etiology of Infertility in Patients with Acromegaly and Co-Existing Cystic Ovaries: Report of Three Cases" at the third World Congress on Fertility and Sterility, held in Amsterdam, The Netherlands, June 7-13, 1959. She also participated in various round-table discussions of the role of hormones and vitamins in fertility. She then joined 15 physicians for a post-Congress trip to Czechoslovakia, Austria, Russia, and Berlin, where physicians in these countries arranged for medical programs and social functions for the group.

On Feb. 23, 1960, Dr. Finkler delivered an illustrated talk, "The Present Status of Medicine in Russia," to the monthly meeting of the Russian Medical Society of New York, held at the New York Academy of Medicine.

At the Annual Forum of Woman's Medical College of Pennsylvania, celebrating Founders' Day, March 9, Dr. Harriet Hardy, Assistant Medical Director at the Massachusetts Institute of Technology, moderated the afternoon session of "Atoms, Rays and People—a Symposium on the Physiological Effects of Ionizing Radiation."

Dr. Helen L. Knudsen was featured in the "Medical Distaff" column of *Scope Weekly* on Sept. 9, 1959. She was cited for her effective public health and academic career and for her work as director of the Division of Hospital Services of the Minnesota State Health Department.

Drs. Dorothy Macy, Jr., Media, Pa., and Jean Margaret Swain, Agnew, Calif., were selected as candidates for advancement to fellowship in the American College of Physicians; Dr. Jean Aileen Spencer, Chicago, was selected as a candidate for direct fellowship in the College; and Drs. Helen Ruth Cash, Cleveland, and Anna Marie Chirico, Philadelphia, were selected for associateship.

Dr. Florence I. Mahoney of Maryland was the recipient of the Governor's Award for Employment of the Physically Handicapped.

A diplomate of the American Board of Plastic Surgery, Dr. Mary Martin of Cincinnati was admitted to the American Society for the Surgery of Trauma in September, 1959.

Miss Judy M. Roheim, a medical student in New York City, received a $350 scholarship "in the ever-continuing effort of the American-Hungarian Medical Association to help physicians and medical students who seek a new home in this country."

Dr. Rieva Rosh, Associate Professor of Radiology, New York University College of Medicine, delivered a lecture series on head and neck tumors to dental students at Jerusalem University and to the Dental Society of Jerusalem. She also lectured in Nice and Rome before returning to the United States in the fall of 1959.

Dr. Claire F. Ryder, President-Elect of AMWA, spoke before the 1960 National Health Forum on "Positive Health of Older People."

Dr. Emma L. W. Sheppard of Fenton was presented with a Fifty Year Pin by the House of Delegates of the Michigan State Medical Society at their 1959 annual session.

The name of Dr. Ruth E. Taylor, who died July 18, 1959, will be preserved in a memorial fund established for the use of the Department of Hematology of the University of Chicago.

At the 64th Annual Meeting of the National Medical Association last October, a sectional meeting on accidental poisoning in infancy and children was moderated and addressed by Dr. Natalie M. Tanner. Her report was the result of a two year study on aspirin poisoning in children.

A public hearing held Oct. 28, 1959, in Pittsburgh, headed by novelist Pearl S. Buck, was devoted to the needs of handicapped children in Western Pennsylvania. Contributing to the proceedings were Dr. Anne Wagner, Medical Services Director, Allegheny County Health Department, who spoke on the visually handicapped, and Dr. Margaret Livingston, Director of Special Education, Pittsburgh Public Schools, who spoke on deprived children.

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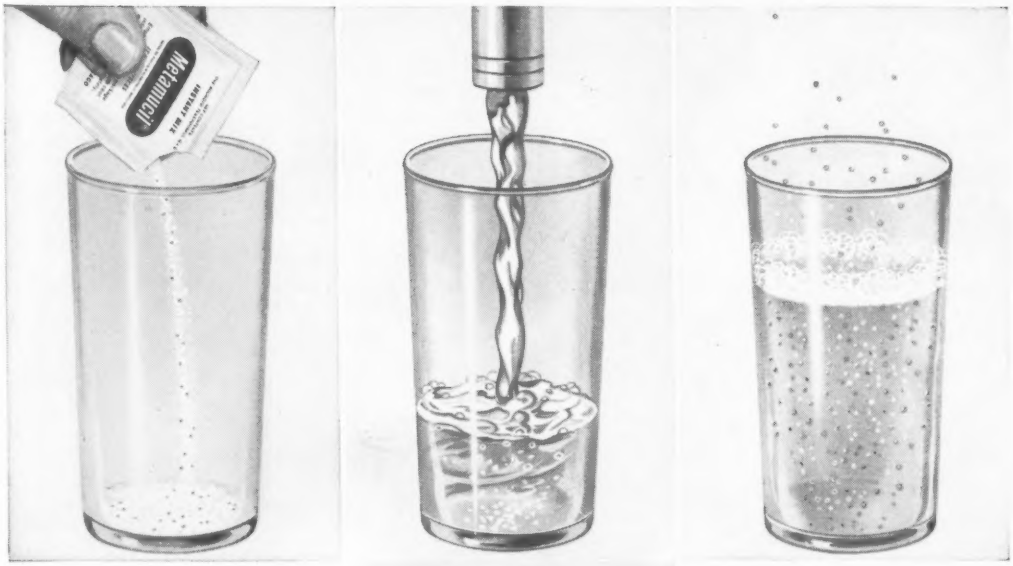

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(Continued from Page 468)

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Doctors, too, like "Premarin"®

THE doctor's room in the hospital is used for a variety of reasons. Most any morning, you will find the internist talking with the surgeon, the resident discussing a case with the gynecologist, or the pediatrician in for a cigarette. It's sort of a club, this room, and it's a good place to get the low-down on "Premarin" therapy.

If you listen, you'll learn not only that doctors like "Premarin," but *why* they like it.

The reasons are simple. Doctors like "Premarin," in the first place, because it really relieves the symptoms of the menopause. It doesn't just mask them – it replaces what the patient lacks – natural estrogen. Furthermore, if the patient is suffering from headache, insomnia, and arthritic-like symptoms due to estrogen deficiency, "Premarin" takes care of that, too.

"Premarin," conjugated estrogens (equine), is available as tablets and liquid, and also in combination with meprobamate or methyltestosterone.

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for morning sickness

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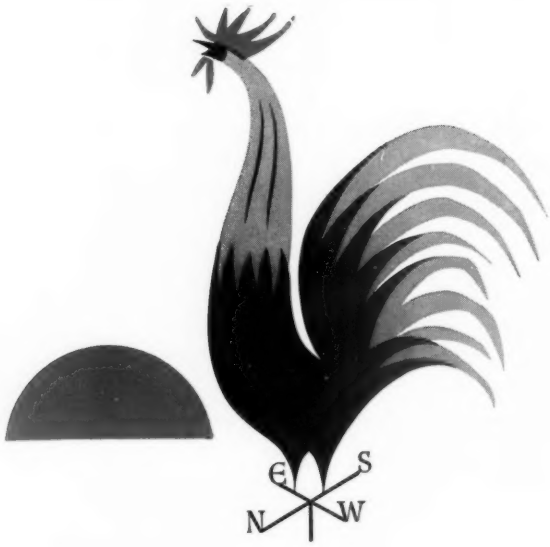

DOSAGE:
One or two tablets give 24 hour protection. Administer at bedtime to prevent "next morning" sickness.

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basic by every standard

effectiveness ✓

"Also, there are fewer therapeutic failures when patients are treated with . . . [BONINE] than with the other drugs."[11]
"...[BONINE] is highly effective in relieving the nausea and vomiting of pregnancy, providing also the advantage of prolonged action. Thus, patients need not anticipate medication in the early morning hours when nausea is at its worst."[12]

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safety ✓

"...[BONINE] is a drug which is safe and nontoxic to both the mother and fetus and which is attended by a minimum of undesirable side effects."[13]

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toleration ✓

"The incidence of side effects is very low and this agent exhibits less sedation and somnolence within therapeutic ranges than any of the effective antiemetic agents."[11]

"Side effects were conspicuous by their rarity."[12]

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convenience ✓

"The most striking advantage of...[BONINE] was that the administration of an effective dose only once daily, at bedtime, gave 24 hour protection, thus obviating the inconvenience and distress of repeating doses during the day."[14]
"...[BONINE] is especially effective and has the advantages of a long duration of action (up to 24 hours) and a minimum of untoward side reactions."[11]

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A single low-dosage drug providing therapeutic benefit at reasonable cost...contains no unnecessary added ingredients that increase cost...requires no extended-action tablet structure for prolonged effect.

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experience ✓

The value of BONINE as an antinauseant has been well documented and is supported by six years of successful clinical use.[1-16]

only rarely does one drug meet so well the needs of one condition

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In addition to the effectiveness required in challenging conditions, Tigan provides the safety which assumes special significance in everyday situations. Tigan shares the superior antiemetic potency (and mechanisms of action[5]) of the phenothiazines without entailing any of their risks or, for that matter, any of the side effects

to car sickness

safely controls the entire range of emetic situations without antihistamine side effects and without phenothiazine risks

of the antihistamines.[6-9] No sedation or other side effects were observed in TRAVEL SICKNESS patients, who were quickly and efficiently relieved by Tigan.[10] Nor was any drowsiness or other untoward reaction seen in 16 PREGNANT women, 15 of whom became asymptomatic on Tigan, while other antiemetic medication had failed or caused drowsiness in several.[10] In GASTROINTESTINAL vomiting, where results were "good" in 86 per cent and "fair" in 14 per cent, Tigan was "well tolerated" by all.[11]

TIGAN (COMPARED TO PLACEBO) IN SEASICKNESS

Medication	Number of Patients	RESULTS Improved	Unimproved
Tigan, given initially	142	133	9
Placebo, given initially	74	7	67
Tigan, given after failure of placebo	65	61	4

NO SPECIAL PRECAUTIONS OR CONTRAINDICATIONS—Patients on Tigan may drive an automobile or operate other mechanical equipment without the hazard of drowsiness; and carry on household activities without lethargy or sleepiness.

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References: 1. J. A. Lucinian and R. H. Bohn, paper read at Colloquium on the Pharmacological and Clinical Aspects of Tigan, New York City, May 15, 1959. 2. O. W. Doyle, *Clin. Med.*, 7:43, 1960. 3. B. I. Shnider and L. Gold, paper read at Colloquium on the Pharmacological and Clinical Aspects of Tigan, New York City, May 15, 1959. 4. D. W. Molander, *ibid.* 5. W. Schallek, G. A. Heise, E. F. Keith and R. E. Bagdon, *J. Pharmacol. & Exper. Therap.*, *126*:270, 1959. 6. Reports on file, Roche Laboratories. 7. O. C. Brandman, paper read at Colloquium on the Pharmacological and Clinical Aspects of Tigan, New York City, May 15, 1959. 8. I. Roseff, W. B. Abrams, J. Kaufman, L. Goldman and A. Bernstein, *J. Newark Beth Israel Hosp.*, 9:189, 1958. 9. W. B. Abrams, I. Roseff, J. Kaufman, L. Goldman and A. Bernstein, *New York J. Med.*, 59:4217, 1959. 10. Personal communications. 11. L. McLaughlin, paper read at Colloquium on the Pharmacological and Clinical Aspects of Tigan, New York City, May 15, 1959.

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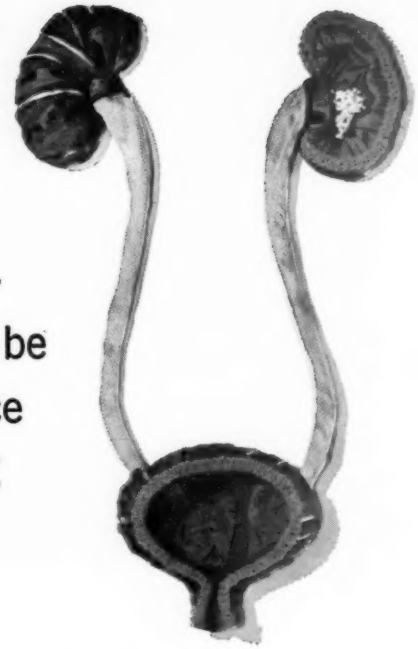

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REFERENCES: 1 Campbell, M. F.: Principles of Urology, Philadelphia, W. B. Saunders Co., 1957. 2. Colby, F. H.: Essential Urology, Baltimore, The Williams & Wilkins Co., 1953.

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1. Projection from Vital Statistics, U.S. Government Dept. HEW, Vol. 48, No. 14, 1958, p. 398.
2. Modell, W.: Drugs of Choice 1958-1959, St. Louis, C. V. Mosby Company, 1958, p. 347.

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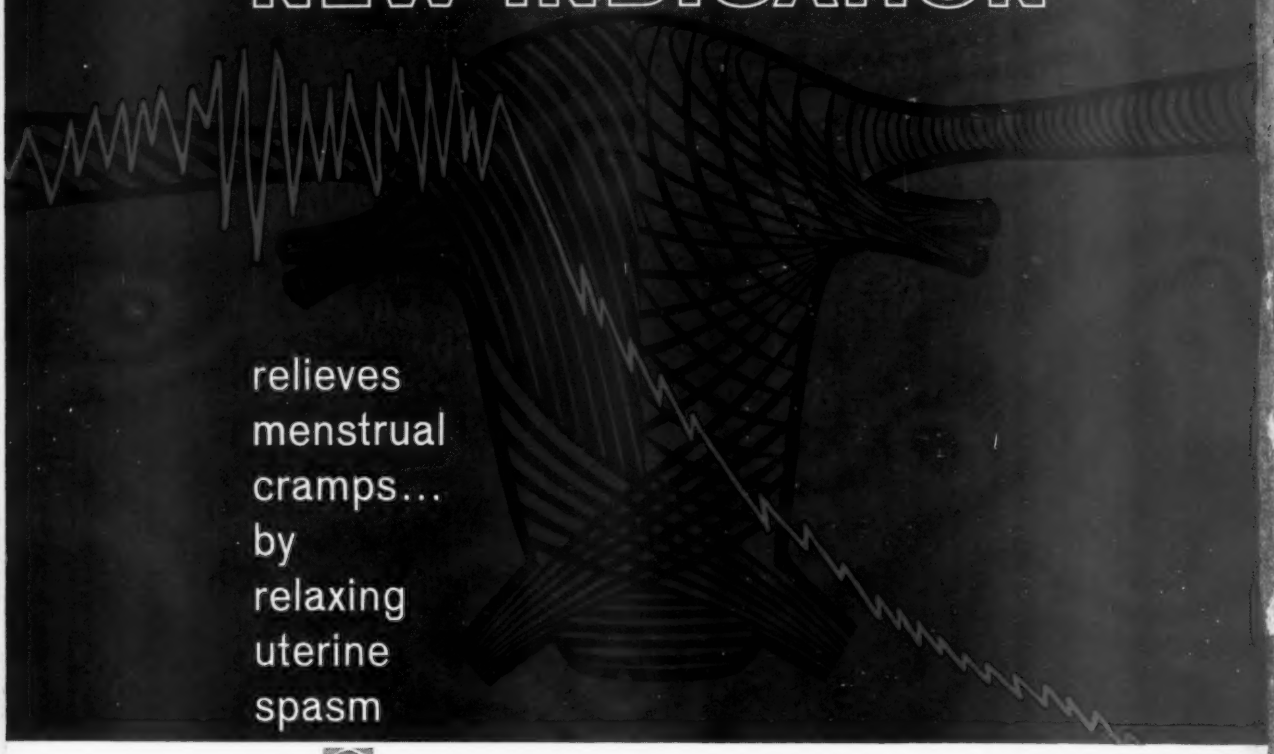

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References: (1) Voulgaris, D. M.: Dysmenorrhea: Cramps or Psyche?, Scientific Exhibit, 108th Ann. Meet., Atlantic City, June 8-12, 1959. (2) Detailed reports in Mead Johnson research files. (3) Voulgaris, D. M.: Obst. & Gynec. *15*: 220-222 (Feb.) 1960.

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